

# FIELDIANA

## Botany

Published by Field Museum of Natural History

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VOLUME 33

### FIRST SUPPLEMENT TO THE ORCHIDS OF PERU

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DECEMBER 30, 1970

PUBLICATION 1116

Charles Schweinfurth, gentleman, scholar, lifelong student of the Orchidaceae, died at his home in Wellesley Hills, Massachusetts on November 16, 1970, only a few days after revising the final proofs of this paper.—*L. Wms.*

*Library of Congress Catalog Card Number: 58-10546*

PRINTED IN THE UNITED STATES OF AMERICA  
BY FIELD MUSEUM PRESS

## First Supplement to the Orchids of Peru

During the interval since the appearance of the last part of "The Orchids of Peru" in 1961, a substantial amount of data relating to the orchid flora of that country has accumulated, and, due to the numerous, extensive, and continuing collections that are now going on, it promises to be an unending process. Therefore, it seems advisable to publish occasional additional notes when a substantial mass of data becomes available, thus forming a series of supplements to the original compilation. The present article is the first of this series.

These supplements consist of various items. Of major importance are the descriptions of species which are either new to that country or new to science, changes of generic concept, reductions of described taxa—particularly those resulting from the monographic studies of the genus *Stelis* by Dr. Leslie A. Garay, Curator of the Oakes Ames Orchid Herbarium of Harvard University—and finally many alterations inspired by the intensive work on Venezuela made by Dunster-ville and Garay in their monumental production, *Venezuelan Orchids Illustrated*. Many amplifications of previously described species, especially extensions of range as shown by recent collections have been omitted, owing to the present high cost of publication.

Every species, not heretofore recorded from Peru in "The Orchids of Peru," is described in some detail, except whenever synonymous species have been described in that publication.

We are especially indebted to the exceedingly large collections made by Paul C. Hutchison associated with E. B. Bennett and J. K. Wright, by Dr. Ramón Ferreyra of Lima, by Dr. César Vargas of Cuzco, and by Drs. López and Sagástegui of Trujillo.

*Habenaria pauciflora* (Lindl.) Reichb. f., Bonpl. 2: 10. 1854. = *H. trifida* HBK. Nov. Gen. et Sp. Pl. 1: 330. 1816.

Examination of the type of the Colombian *Habenaria trifida* shows that it is identical with the widespread species commonly known as *H. pauciflora* Reichb. f.

*Chloraea peruviana* Kränzl., Engler Bot. Jahrb. 37: 528. 1906. = *C. undulata* Raimondi ex Colunga, Text Book. Bot. 2: 187. 1878.

I am indebted to Dr. R. Aspiazu of Lima, Peru, for calling this matter to my attention.

*Chloraea undulata* Raimondi ex Colunga Text Book. Bot. 2: 187. 1878. Anal. de la Dir. de Fomento No. 6: 49. 1906. *C. peruviana* Kränzl., Engler Bot. Jahrb. 37: 528. 1906.

*Psilochilus macrophyllus* (Lindl.) Ames Orchid. 7: 45, pl. 110. 1922. *Pogonia macrophylla* Lindl., Ann. & Mag. Nat. Hist., ser. 3, 1: 335. 1858.

Plant coarse, medium-sized to large, terrestrial, with a creeping, rooting rhizome. Leaves several, distant, arising from a tubular, sheathing petiole, cordate-ovate to ovate-oblong (or rarely oblong-lanceolate), acute or short-acuminate, rounded to subcordate below, about 2–10 cm. long, up to 4.5 cm. wide. Raceme (rarely branching), short to rather elongate, loosely 2- to many-flowered. Floral bracts conspicuous, ovate, clasping. Dorsal sepal incurved, cucullate, linear to narrowly oblanceolate, acute, about 2 cm. long. Lateral sepals similar but a little shorter, falcate-recurved. Petals similar to the sepals but slightly shorter, obliquely linear or elliptic-linear, more membranaceous than the sepals. Lip spatulate with a narrow channelled claw, 3-lobed above the middle, with 3 indistinct longitudinal keels, about 1.3 cm. long; lateral lobes short, round-ovate; mid-lobe subrotund with crisped margins.

Cuzco: Prov. of Convención, Hda. Potrero, Sapan-Sachayoc, 2,200 meters, on forest humus, *Vargas 2534*.—San Martín: Habitat not recorded; roots large and thick, tomentose, *Moore 860*. Also Central America, the West Indies, and northern South America.

*Epistephium monanthum* Poepp. & Endl. Nov. Gen. ac Sp. 1: 53, t. 92. 1836, is referable to *Pogonia monantha* (Poepp. & Endl.) Schltr. Fedde Repert. Beih. 9: 121. 1921.

An examination of the type reveals an absence of the dentate cup beneath the perianth which is characteristic of *Epistephium* and it must therefore be excluded from that genus.

*Elleanthus casapensis* (Reichb. f.) Reichb. f., Walp. Ann. 6: 475. 1862 and *E. cephalophorus* (Reichb. f.) Reichb. f. l.c.: 476 are now considered to be inseparable from the earlier *E. capitalus* (R. Br.) Reichb. f., Walp. Ann. 6: 475. 1862.

*Elleanthus fractiflexus* Schltr. Fedde Repert. Beih. 8: 35. 1921. *E. tenellus* L. Wms., Lilloa 6: 241. 1941.

Plant small, terrestrial or epiphytic. Stems caespitose and densely clustered, very slender, entirely concealed by close, tubular leaf-sheaths. Leaves distichous, strict, linear, sessile, bilobed and mucronate at the apex, 3–6 cm. long. Inflores-

cences short, arcuate in age, loosely about 7-flowered with a strongly fractiflex rachis, 2-3 cm. long. Floral bracts conspicuous, triangular-lanceolate, long-acuminate, much surpassing the flowers. Flowers very small, dark-hairy without. Dorsal sepal ovate-oblong or oblong-lanceolate, acute, mucronate, 2.5-4 mm. long. Lateral sepals obliquely ovate or triangular-lanceolate, acute, mucronate, about as long as the dorsal sepal but broader. Petals linear-oblong, obtuse or truncate at the apex, about as long as the sepals. Lip about as long as the other segments, transversely oval, obtusely 3-lobed in front.

Cuzco: Prov. of Paucartambo, Kosñipata to Santa Isabel, 1,300 m., epiphytic, flowers reddish, *Vargas 6475*. Also Ecuador (type of *E. fractiflexus*) and Colombia (type of *E. tenellus*).

*Elleanthus tenellus* L. Wms., Lilloa 6: 241. 1941. = *E. fractiflexus* Schltr. Fedde Repert. Beih. 8: 35. 1921.

*Sobralia ciliata* (Presl) C. Schweinf. comb. nov. *Bletia ciliata* Presl Rel. Haenk. 1, Livr. 2: 97. 1827.

The concept described as *Bletia ciliata*, as shown by a study of typical material, proves to represent a true *Sobralia*, and thus necessitates the above transfer.

Plant stout, simple (lower portion missing). Stem entirely concealed by striate leaf-sheaths. Leaves lanceolate, strongly acuminate, plicate, coriaceous, about 15 cm. long and 2.5 cm. wide. Racemes axillary (in the middle of the stem) and terminal, 1 to 3, shorter than the leaf, erect-spreading. Flowers rather loose, erect-spreading, purple, about 2.5 cm. long. Sepals oblanceolate, acute. Petals oblong-spatulate, slightly broader than the sepals. Lip simple, obovate or oblong-obovate, excised in front, traversed by 5 to 7 low verrucose keels, with the anterior margins ciliate-fimbriate.

Huánuco (Huánocco), on mountains, *Presl s.n.* (type of *Bletia ciliata*). — Puno: Prov. of Sandía, Limbani to Chamacani, 2,500 m., on boulders or cliffs, 1.5 m. high, *Vargas 14933*. Also Venezuela.

*Sobralia sessilis* Lindl., Bot. Reg. 27: Misc. 3, no. 11. 1841; Lindl., Bot. Mag. 77: t. 4570. 1851.

Plant tall, up to 6 dm. high, terrestrial. Stems clustered, mostly concealed by long, close, tubular, dark-hirsute sheaths. Leaves several to numerous, distichous, remote, oblong- or elliptic-lanceolate, long-acuminate, sessile, plicate, up to 17.5 cm. long and 4.5 cm. wide, the uppermost leaf much smaller. Flowers solitary, large, white or deep purple or rosy with a darker lip, the pedicel clasped by a pair of narrow, imbricating spathes. Dorsal sepal elliptic-lanceolate, acute, about 4.4 cm. long and 1.4 cm. wide. Lateral sepals similar, but somewhat larger throughout. Petals similar to the dorsal sepal but sometimes markedly wider than either sepal. Lip slightly shorter than the sepals, yellowish through the lower half, obovate or obovate-rhomboid, lightly retuse, with 2 small white lamellae at base. Column slender, about 2.5 cm. long with a pair of incurved teeth at the slightly dilated apex.

Loreto: Habitat not cited, plant up to 8 ft. high, *Moore s.n.* Also British Guiana (type), Venezuela, Colombia, and Brazil.

*Stenoptera parviflora* (C. Schweinf.) C. Schweinf. stat. nov. *Stenoptera pilifera* (HBK.) C. Schweinf. var. *parviflora* C. Schweinf., Bot. Mus. Leaflet. Harvard Univ. 9: 222. 1941.

It appears that this taxon is sufficiently distinct to warrant specific rank.

La Libertad: Prov. of Trujillo, 20 km. above Samne on road to Huamachuco, at the crossing of Río Mocha, 14 km. west of Agallpampa, 2,510 m., leafless terrestrial, *Hutchison & Wright 6128*. — Piura: Prov. of Huancabamba, 7 km. above Huancabamba, on road to Canchaque, 2,450 m., at the base of *Borzicactus neo-Roezlii* Ritter, flowers white, *Hutchison & Wright 6625*.

*Stenoptera pilifera* (HBK.) C. Schweinf. var. *parviflora* C. Schweinf., Bot. Mus. Leaflet. Harvard Univ. 9: 222. 1941. = *S. parviflora* C. Schweinf.

*Prescottia oligantha* (Sw.) Lindl. Gen. & Sp. Orch. 454. 1840. *Cranichis oligantha* Sw. Prodr. Veg. Ind. Occ. 120. 1788. *Prescottia tenuis* Lindl. Gen. & Sp. Orch. 454. 1840.

Cuzco: Prov. of Paucartambo, Pillawata, Paso del Aguila, 2,700–2,900 m., in humus, *Vargas 16808*. Plant up to 4 dm. tall. Leaves 2 to rarely 6 cm. long. Sepals up to 2 mm. long. A widespread species extending from Florida (U.S.A.) and the West Indies (Jamaica, type of *Cranichis oligantha*) through Middle and Central America and South America to Argentina.

*Cranichis diphylla* Sw. Prodr. Veg. Ind. Occ. 120. 1788.

Plant slender, up to 4.8 dm. tall. Leaves basal, 1–2, petioled; lamina ovate, cordate, acute or acuminate, 2 to rarely 9 cm. long in the middle and 3.7 cm. wide; petiole 1–11 cm. long. Spike rather densely several- to many-flowered, up to 7 cm. long. Flowers very small, commonly greenish white, glabrous. Dorsal sepal oblong-elliptic, 2.5–4 mm. long. Lateral sepals narrowly and obliquely ovate, somewhat broader. Petals oblanceolate-linear to subspatulate, obtuse. Lip ovate to suborbicular, cucullate, acute or obtuse, slightly shorter than the sepals.

Amazonas: Prov. of Chachapoyas, Cerros Calla Calla, 18 km. above Leimebamba, on road to Balsas, 3,100 m., sepals yellow-green, petals white, *Hutchison & Wright 3599*. A widespread species extending from the West Indies (Jamaica, type), Middle and Central America to Costa Rica and Colombia.

*Cranichis oligantha* Sw. Prodr. Veg. Ind. Occ. 120. 1788. = *Prescottia oligantha* (Sw.) Lindl.

*Cranichis pycnantha* Schltr. Fedde Repert. Beih. 7: 62. 1920.  
*Ophrys parviflora* Presl Rel. Haenk. 1, Livr. 2: 92. 1827.

An examination of the type of *Ophrys parviflora*, recently loaned from Prague, shows that this concept is referable to the widely represented South American *Cranichis pycnantha*. The epithet *parviflora* cannot be substituted, as it is preëmpted by the Argentine *Cranichis parviflora* L. Wms. 1938.

*Ponthieva montana* Lindl., Benth. Pl. Hartw. 155. 1845. = **P. pubescens** (Presl) C. Schweinf. nom. nov. *Ophrys pubescens* Presl Rel. Haenk. 1, Livr. 2: 91. 1927.

An examination of the type of *Ophrys pubescens* Presl, sent from Prague, shows that it is referable to the genus *Ponthieva* as represented by *P. montana* Lindl. The epithet *pubescens* must therefore displace the later adjective *montana*, and the above new combination is made.

**Spiranthe Barrancae** Esposto in Anal. de la Dirección de Fomento, Lima, 1913, No. 6, p. 52, with plate.

"Radices crassiusculae ad 10 cm. longae via 12 mm. crassae. Polia rosulata 3-5 brevi petiolata oblonga acutiuscula cum petiolo 20 cm. longa, 3 cm. lata, laete viridis glabra interdum, paulum asymetrica. Scapus cum inflorescentia ad 25-30 cm. altus vaginulae ad 7 angustae acuminatae; spica 8-10 cm. longa laxi flora, rachis necnon parscaulis infra ipsam tenuis et densite glanduloso-pilosa; bractae lanceolate acuminatae 2-2.5 cm. longae 7-10 mm. latae. Sepalum dorsale cum petalis conglutinatum foliolum tridentatum formans; sepala lateralia deflexa anguste lingulata apice breviter acuminata; labellum canaliculatum medium contractum antice in lamina transversum oblonga retusiusculam dilatatum, baci cordatum utrinque callo rotundato minuto praeditum toto margine praesertim antice brebiter fimbriata. Gynostemium 2-3 floris equans, rostellum apice acutiusculum. Flores virides exceptum labellum, labellum luteum; sepalum dorsale 2 cm. longum, 5 mm. latum, sepala lateralia et sepala 2 cm. longa vix 2.5 mm. latae, labellum ad 2 cm. longum, 8 mm. latum. Sepala, petala et ovarium densite glandulose-pilosae. Labellum densite pilosum.

"Floret Augusto Peruvia; in Limae in rupibus aridis inter berbidis et Piticarniae ferruginosae, cerro del Agostino dicto et in montibus vallis torrena Rimac.

"In honorem illustri Peruviano Sebastiano Barranca, philologo insigni et in Scientiis naturalibus universis praeclaro hanc speciem dicemus.

The above is an exact transcription of the notes given to me at a meeting of the South American Botanical Congress in Lima, Peru, in 1958.

Although no copy of this publication is available in this country, all of the evidence points to the conclusion that it represents what was earlier described as *S. Pavonii* Reichb. f., Bonpl. 4: 211. 1856.

**Spiranthes cranichoides** (Griseb.) Cogn., Urban Symb. Antill. 6: 338. 1909. *Pelexia cranichoides* Griseb. Cat. Pl. Cub. 269. 1866.

Plant terrestrial, slender, up to 4.8 dm. tall. Leaves rosulate at the base of the stem, up to 6, distinctly petioled; lamina elliptic-ovate, acute or acuminate, cuneate below, often purplish beneath, 2-7 cm. long, up to 4 cm. wide; petiole slender, up to 4 cm. long, dilated toward the base. Stem glabrous below, short-pubescent above, provided with several remote, long, loose, scarios sheaths. Spike loosely few- to many-flowered, up to 11 cm. long. Flowers small, horizontal. Sepals greenish flushed with madder-purple. Dorsal sepal narrowly ovate-lanceolate, obtuse to acute, about 4-5 mm. long. Lateral sepals obliquely and narrowly lanceolate, acute, a little longer than the dorsal sepal. Petals narrowly oblanceolate, subobtuse to acute, about as long as the dorsal sepal. Lip elliptic-ovate in outline, 3-lobed just above the middle, 5-6 mm. long, up to 3 mm. wide near the middle, with a pair of small erect calli at base; lateral lobes short, obtuse-angulate, clasping the column; mid-lobe broadly rhomboid to suborbicular-quadrate, subtruncate and often abruptly acute.

Puno: Prov. of Carabaya, Hda. Quillabamba at Sangari, 1,000 m., in damp ground, *Vargas 17560*. (This collection is the first record of *Spiranthes cranichoides* from South America.) Heretofore it was known only from southern Florida (U.S.A.), the West Indies (Cuba, type of *Pelexia cranichoides*), and rarely from Central America.

**Spiranthes homalogastra** Reichb. f. & Warm., Otia Bot. Hamb. Fasc. 2: 54. 1881.

Plant leafless, up to 2.5 dm. tall. Stem glabrous, provided with numerous lanceolate, acuminate, scarios sheaths. Inflorescences loosely 4- to 6-flowered. Flowers large, green, abruptly deflexed from the erect ovary. Dorsal sepal narrowly oblong-lanceolate, acute, about 20 mm. long and 5 mm. wide. Lateral sepals falcate-lanceolate, long-decurrent at base along the column-foot, slightly longer and distinctly broader than the dorsal sepal. Petals strongly adnate to the dorsal sepal and almost as long, obliquely and narrowly oblanceolate, acute. Lip surpassing the sepals, about 30 mm. long, from a linear sagittate base rather abruptly dilated into an oblong-pandurate lamina with the anterior portion ovate-lanceolate, obtuse and crisped-undulate.

Amazonas: Prov. of Bagua, on Cerro Tapur, about 40 km. south of Bagua Grande, 1,150 m., in deep jungle on Río Utcubamba, an hour's jeep ride above Hacienda Misqui, in grass in full sun, *Hutchinson 1453*. Brazil (type).

**Spiranthes lanceolata** (Aubl.) León, Contrib. Ocas. Mus. Hist. Nat. Col. De La Salle, No. 8 (Fl. Cuba) 358. 1946. *Limodorum lanceolatum* Aubl. Pl. Guian. 2: 821. 1775. *Satyrium orchioides* Sw. Prodr. Descr. Veg. Ind. Occ. 118: 1788. *Stenorrhynchus orchioides* L. C. Rich., Mém. Mus. Hist. Nat., Paris 4: 59. 1818. *Spiranthes*



*orchioides* (Sw.) A. Rich., Sagra Hist. Isl. Cub., Segunda Parte, Hist. Nat. 11 (Fl. Cub. Fanerog. 2) 252. 1850.

This widespread and variable taxon has most commonly been designated as *Spiranthes* or *Stenorrhynchus orchioides*. It has been reported from Amazonas, in addition to the Peruvian localities recorded.

*Spiranthes minutiflora* Reichb. f., Bonpl. 2: 11. 1854. = **S. Reichenbachiana** Garay & Dunsterv. Venez. Orch. Illustr. 4: 284. t., 1966.

*Spiranthes orchioides* (Sw.) A. Rich. Sagra Hist. Isl. Cub. Segunda Parte, Hist. Nat. 11 (Fl. Cub. Fanerog. 2) 252. 1850. = **S. lanceolata** (Aubl.) Léon.

*Spiranthes orthantha* Kränzl., Ann. Nat. Hist. Mus. Wien. 27: 109. 1913. = **Lankesterella orthantha** (Kränzl.) Garay, *Caldasia* 8, no. 40: 521. 1962.

***Spiranthes plantaginea*** Lindl. Gen. & Sp. Orch. 468. 1840.

This concept, which was formerly treated as a synonym of *S. elata* (Sw.) L. C. Rich., is now regarded as a distinct species.

***Spiranthes Reichenbachiana*** Garay & Dunsterv. Venez. Orch. Illus. 4: 284, t., 1966. *Spiranthes minutiflora* Reichb. f., Bonpl. 2: 11. 1854, not *S. minutiflora* A. Rich. & Gal., 1845.

This taxon, which has been treated as a synonym of the variable *S. elata* (Sw.) L. C. Rich., is now regarded as a distinct species.

***Eurystyles cotyledon*** Wawra, Oesterr. Bot. Zeitschr. 13: 233. 1863.

Plant small, about 4 cm. tall, epiphytic. Roots fascicled, fleshy, villous. Leaves basal, rosulate, 5–10, ovate-elliptic, acute and apiculate, gradually narrowed below into a short broad petiole, about 1.5–3.5 cm. long including the petiole, up to 12 mm. wide. Peduncle about 2–4 cm. long, adorned with 1 foliaceous sheath, densely villous, pendulous from a suberect base. Raceme capitate, densely 6- to 12-flowered (rarely 20-flowered). Dorsal sepal ligulate, obtuse, about 4–4.5 mm. long. Lateral sepals larger, narrowly and obliquely lanceolate, bulbous-saccate at base. Petals oblong-oblancheolate, strongly adnate to the dorsal sepal and nearly as long. Lip ovate-oblong, lightly dilated in the middle or above, subtruncate in front, sagittate at base, with a pair of prominent reflexed auricles, about 4.8 mm. long and 3.4 mm. wide across the middle.

Amazonas: Prov. of Chachapoyas, Cerros Calla Calla, 10–15 km. above Leimebamba, on road to Balsas, 2,700–2,950 meters, epiphyte in deep shade, flowers white with green spots on lip, *Hutchison & Bennett* 4676, 4750. Costa Rica, Venezuela, Colombia, Brazil (type).

**Lankesterella orthantha** (Kränzl.) Garay, *Caldasia* 8, no. 40: 521. 1962. *Spiranthes orthantha* Kränzl., *Ann. Nat. Hist. Mus. Wien* 27: 109. 1913. *Lankesterella costaricensis* Ames *Sched. Orch.* 4: 4. 1923.

Plant very small, epiphytic, about 11.5 cm. tall. Roots coarse, whitish. Leaves basal, rosulate, up to 9, oblanceolate, acute, 1.2–3.5 cm. long, about 4–10 mm. wide. Inflorescence more or less surpassing the leaves, with the peduncle very densely villous. Raceme loosely 1- to 10-flowered, erect to arcuate or pendent. Flowers pale green or white, campanulate, the sepals being long-pilose without. Dorsal sepal linear-oblong, acute, 6–9 mm. long, 1.2–2 mm. wide. Lateral sepals slightly longer and wider than the dorsal sepal, triangular-linear, bulbous-concave at base. Petals free, similar to the dorsal sepal, but shorter. Lip narrowly pandurate-oblong, broadly obtuse and apiculate, sagittate at base with a pair of retrorse auricles, about 9 mm. long and 3 mm. wide below and above (when the involute anterior margins are expanded).

Lambayeque: Prov. of Chiclayo, Hacienda Taulis just below Palmito, 2,700 m., epiphyte in shade, clinging to forest shrubs and tree trunks, *Hutchison & von Bismarck 6416*. Costa Rica (type of *Lankesterella costaricensis*), Venezuela and Ecuador (type of *Spiranthes orthantha*).

**Erythrodes major** (Presl) Ames *Orchidaceae* 7: 72. 1922.

Cuzco: Prov. of Convención, Machu-Picchu, *Chonord s.n.*

*Stelis acutissima* Lindl. *Fol. Orch. Stelis* 14: no. 108. 1858. = **S. purpurea** (Ruíz & Pav.) Willd. *Sp. Pl.* 4: 140. 1805.

**Stelis alba** HBK. *Nov. Gen. et Sp.* 1: 363. 1816.

It is recorded only from Colombia.

*Stelis apiculata* Lindl. *Fol. Orch. Stelis* 11, no. 76. 1858. = **S. pusilla** HBK. *Nov. Gen. et Sp.* 1: 361. 1816.

**Stelis aprica** Lindl., *Hook. Comp. Bot. Mag.* 2: 353. 1836. *S. Herzogii* Schltr., *Fedde Repert.* 12: 484. 1913.

**Stelis argentata** Lindl., *Bot. Reg.* 28, Misc. 64, no. 78. 1842. *S. superbiens* Lindl. *Fol. Orch. Stelis* 8, no. 57. 1858. *S. leucopogon* Reichb. f. *Beitr. Orch. Centr.-Am.* 95, t. 9, figs. I, 1–4. 1866. *S. Endresii* Reichb. f., *Gard. Chron* (1870) 1373.

*Stelis ascensor* C. Schweinf. *Bot. Mus. Leaflet. Harvard Univ.* 15: 10, t. 5. 1951. = **S. tenuicaulis** Lindl. *Fol. Orch. Stelis* 16, no. 119. 1858.

*Stelis atra* Lindl. *Orch. Linden.* 3, no. 15. 1846. = **S. Hallii** Lindl. var. **atra** (Lindl.) Garay & Schweinf. *supra*.

**Stelis aviceps** Lindl. Fol. Orch. Stelis 16, no. 121. 1858. *Stelis polycarpa* Schltr., Fedde Repert. 27: 46. 1929. *Stelis connata* C. Schweinf., Fieldiana (Botany) 30, no. 1 (Orch. Peru) 179. 1958, not Presl.

*Stelis aviceps* has been found to include *S. polycarpa* which has already been described in my *Peruvian Orchid Flora* as well as *S. connata* C. Schweinf., as interpreted by me in the above treatise.

*Stelis bicallosa* Schltr. Fedde Repert. Beih. 9: 63. 1921. = **S. parviflora** (Ruíz & Pav.) Pers. Syn. Pl. 2: 524. 1807.

**Stelis biserrula** Lindl. Fol. Orch. Stelis 16, no. 120. 1858. *S. tristeta* Lindl. Fol. Orch. Stelis 17, no. 126. 1858.

**Stelis boliviensis** Rolfe, Bull. N. Y. Bot. Gard. 4: 450. 1907.

Plant medium-sized, caespitose. Stems slender, up to 10 cm. long. Leaf oblong- or elliptic-lanceolate, distinctly petioled; lamina up to 7.6 cm. long and 2.1 cm. wide; petioles 12 mm. or more long. Inflorescences 1 or 2, slender, 7.6–11.4 cm. long, more or less densely many-flowered. Sepals subequal, broadly elliptic or elliptic-ovate, subobtuse, about 2–3 mm. long. Petals orbicular-reniform, one-third as long as the sepals. Lip broadly ovate, concave, channelled through the center, with a pair of lateral tubercles near the base.

Cuzco: Prov. of Calca, Vilcabamba, 2,550 meters, epiphyte, *Vargas 4011*.—Prov. of Urubamba, "Huinahuaina," 2,550 m., *Vargas 4127*. Bolivia (type).

**Stelis brevilabris** Lindl., Ann. Mag. Nat. Hist. 15: 107. 1845. *S. inversa* Schltr. Fedde Repert. Beih. 9: 64. 1921.

*Stelis breviracema* C. Schweinf., Bot. Mus. Leaflet. Harvard Univ. 15: 12, t. 6. 1951. = **S. campanulifera** Lindl. Fol. Orch. Stelis 3, no. 15. 1858.

Cuzco: Prov. of Paucartambo, Pillawata, Perolnayoc, 2,600 meters, epiphyte, *Vargas 16984*.

**Stelis campanulifera** Lindl. Fol. Orch. Stelis 3, no. 15. 1858. *S. breviracema* C. Schweinf.

*Stelis connata* Presl Rel. Haenk. 1: Livr. 2: 103. 1827. = **S. purpurea** (Ruíz & Pav.) Willd. Sp. Pl. 4: 140. 1805.

*Stelis connata* C. Schweinf., Fieldiana (Botany) 30, no. 1 (Orch. Peru) 179. 1958, not Presl. = **S. aviceps** Lindl.

*Stelis contorta* (Ruíz & Pav.) Pers. Syn. Pl. 2: 524. 1807. = **Restrepia** sp.

*Stelis cupuligera* Reichb. f. & Warsc., Bonpl. 2: 114. 1854. *S. densiflora* Lindl. Fol. Orch. Stelis 16, no. 118. 1858.

*Stelis curvicarina* C. Schweinf. Bot. Mus. Leaflet. Harvard Univ. 15: 14, t. 7. 1951. = *S. tenuicaulis* Lindl. Fol. Orch. Stelis 16: no. 119. 1858.

*Stelis densiflora* Lindl. Fol. Orch. Stelis 16, no. 118. 1858. = *S. cupuligera* Reichb. f. & Warsc.

*Stelis discolor* Reichb. f., Bonpl. 3: 240. 1855. = *S. Jamesonii* Lindl., Hook. Journ. Bot. 1: 11. 1834 var. *parviflora* Garay, Canad. Journ. Bot. 34: 352, fig. 1, B. 1956.

Amazonas: Prov. of Chachapoyas, Cerros Calla Calla, 14–15 km. above Leimebamba, on road to Balsas, 2,950 m., flowers purple, *Hutchison & Bennett 4666, 4700.*

*Stelis dispar* C. Schweinf., Fieldiana, Botany 28, no. 1: 177, fig. 30. 1951. = *S. Hallii* Lindl., Hook Journ. Bot. 1: 12. 1834.

*Stelis elongata* HBK. Nov. Gen. et Sp. 1: 363. 1816. *S. lobata* Reichb. f., Bonpl. 3: 241. 1855. *S. melicoides* Schltr. Fedde Repert. Beih. 9: 66. 1921.

*Stelis Endresii* Reichb. f., Gard. Chron. (1870) 1373. = *S. argentata* Lindl.

*Stelis eublepharis* Reichb. f. var. *glabriflora* C. Schweinf. Bot. Mus. Leaflet. Harvard Univ. 16: 3. 1953. = *S. loxensis* Lindl., Benth. Pl. Hartw. 149. 1844. Also Ecuador (type of *S. loxensis*).

### *Stelis flexa* Schltr., Fedde Repert. 27: 41. 1929.

Plant slender, with a creeping rhizome, about 16 cm. high. Stems approximate to more or less distant, concealed by 2 or 3 close, evanescent, tubular sheaths, up to 7 cm. long. Leaf indistinctly petioled, linear-oblongate, acute, gradually narrowed below, up to 11 cm. long and 9 mm. wide. Inflorescences solitary, subequaling or slightly surpassing the leaf, diffuse, many-flowered and densely flowered above, up to 14 cm. long. Flowers very small. Sepals subequal, ovate, subacute, 3-nerved, about 1.7 mm. long. Petals much smaller, cuneate-obovate, much thickened above with a broadly rounded apex. Lip about equaling the petals, ovate from a short abrupt claw, with a transverse bilobed thickening below.

Amazonas: Prov. of Chachapoyas, middle eastern slopes of Calla Calla, near Kms. 415–418 of Leimebamba–Balsas road, 2,900–3,150 m., low epiphyte in moist ravine, flowers cream-color with a faint maroon flush, *Wurdack 1747.* Bolivia (type).

*Stelis floribunda* HBK. Nov. Gen. et Sp. 1: 362. 1816. = *S. oblonga* (Ruiz & Pav.) Willd. Sp. Pl. 4: 139. 1805.

*Stelis Gonzalesiana* C. Schweinf., Rev. Acad. Colomb., Ciénc. Exact. Fisic. y Nat. 5, no. 19: 349. 1943. = *S. hylophila* Reichb. f., Bonpl. 3: 241. 1855.

*Stelis gracilispica* C. Schweinf., Bot. Mus. Leaflet. Harvard Univ. 15: 17, t. 9. 1951. = *S. striolata* Lindl. Fol. Orch. Stelis 4, no. 26. 1858.

*Stelis Hallii* Lindl., Hook. Journ. Bot. 1: 12. 1834. *S. dispar* C. Schweinf., Fieldiana, Botany 28, no. 1: 177, fig. 30. 1951.

*Stelis Hallii* Lindl. var. *atra* (Lindl.) Garay & Schweinf. comb. nov. *S. atra* Lindl. Orch. Linden. 3, no. 15. 1846.

*Stelis Herzogii* Schltr., Fedde Repert. 12: 484. 1913. = *S. aprica* Lindl., Hook. Comp. Bot. Mag. 2: 353. 1836.

*Stelis insignis* Ames Sched. Orch. 1: 5. 1922. = *S. oblanga* (Ruíz & Pav.) Willd. Sp. Pl. 4: 139. 1805.

*Stelis inversa* Schltr. Fedde Repert. Beih. 9: 64. 1921. = *S. brevilabris* Lindl., Ann. & Mag. Nat. Hist. 15: 107. 1845.

*Stelis Jamesonii* Lindl. var. *parviflora* Garay, Canad. Journ. Bot. 34: 352, fig. 5, B. 1956. *S. nephropetala* Schtr. Fedde Repert. Beih. 9: 66. 1921.

*Stelis lamellata* Lindl., Hook. Comp. Bot. Mag. 2: 353. 1836.

Plant small to medium-sized, up to about 24 cm. high from an ascending rhizome. Stems short, approximate, about 4–5 cm. long, concealed by 2 or 3 loose, tubular sheaths. Leaf petioled; lamina narrowly elliptic to linear-oblongate, acute, gradually narrowed below, up to 4.5 cm. long and 8 mm. wide; petiole indistinct, about 1–2 cm. long. Inflorescence much surpassing the leaf, commonly solitary, subdensely many-flowered, rather lax, 14–19 cm. long. Flowers small, usually secund. Sepals subequal, ovate, obtuse to acute, about 2–3.5 mm. long, 3-nerved. Petals much smaller, cuneate-obovate, fleshy-thickened at the broadly rounded apex. Lip about equaling the petals, suborbicular-obovate, abruptly acute in the center of the broad apex, cuneate below, with a prominent fleshy thickening through the center of the lower half.

Amazonas: Prov. of Chachapoyas, Cerros Calla Calla, 7.5 km. above Leimebamba, on road to Balsas, 2,535 m., flowers pale yellow, *Hutchison & Bennett 4699*.—Cuzco: Prov. of Calca, Lares-Terba-buenayoc, *Vargas 11949*. (This collection differs from the usual form in having more remote stems and purple flowers.)—Huánuco: Prov. of Huánuco, Carpish, 2,850 m., epiphyte, flowers yellow, *Asplund 13130*.

**Stelis lanceolata** (Ruíz & Pav.) Willd. Sp. Pl. 4: 139. 1805.

Plant medium-sized to large, terrestrial or epiphytic. Stems often in dense clumps from an ascending rhizome, up to 12.7 cm. long, provided with 2 or 3 tubular sheaths. Leaf shortly petioled; lamina elliptic-oblong, obtuse, narrowed below, up to 10 cm. long and 2.5 cm. wide. Inflorescences 1 or 2, rather densely many-flowered, up to 18 cm. long. Flowers green to maroon-brown. Dorsal sepal broadly ovate, subacute, 3- to 5-nerved, about 6 mm. long. Lateral sepals markedly smaller. Petals one-third as long as the sepals, transversely round-oval. Lip subequaling the petals, subquadrate-obovate, with a broad subtruncate apex.

This species proves to be very different from *Pleurothallis lanceolata* Lindl. (as was erroneously supposed). Also Venezuela and Colombia.

**Stelis lentiginosa** Lindl. Fol. Orch. Stelis 8, no. 58. 1858.

Plant small, epiphytic, with a creeping rhizome. Stems abbreviated, 1.5-2.5 cm. distant. Leaf small, long-petioled; lamina oblong-elliptic, subacute, about 2 cm. long and 5 mm. wide; petiole about 1 cm. long. Inflorescence solitary, much surpassing the leaf, about 10 cm. long, terminating in a loose, 8- to 10-flowered raceme. Flowers small, purple, campanulate. Sepals subequal, 3-nerved, about 4 mm. long. Dorsal sepal oblong-ovate, acute. Lateral sepals ovate. Petals one-third as large as the sepals, rhombic-obovate, with a broad, thickened apex. Lip somewhat larger than the petals, obovate-oblong, obtuse, fleshy-thickened at the base.

This description made chiefly from the collection cited below.

Lambayeque: Prov. of Chiclayo, Hacienda Taulis, Río La Quinua above La Playa, 2,900 m., flowers dull yellow with purplish cast, *Hutchison & von Bismarck 6519*.

*Stelis leucopogon* Reichb. f. Beitr. Orch. Centr.-Am. 95, t. 9, figs. I, 1-4. 1866. = **S. argentata** Lindl., Bot. Reg. 28, Misc. 64, no. 78. 1842.

*Stelis Lindenii* C. Schweinf., Fieldiana, Botany, 30, no. 1, 201. 1958 (not Lindl.). = **S. Purdiei** Lindl. Fol. Orch. Stelis 5, no. 31. 1858.

*Stelis Lindleyana* Cogn. var. *carosior* C. Schweinf., Bot. Mus. Leaf. Harvard Univ. 10: 120. 1942. = **S. Lindleyana** Cogn., Martius Fl. Bras. 3, pt. 4: 346. 1896.

**Stelis maxima** Lindl., Ann. Mag. Nat. Hist. 15: 106. 1845.

Plant large, up to 43 cm. high. Stem up to 13 cm. long, provided with 2 or 3 loose, tubular sheaths. Leaf petioled; lamina oblong-elliptic, obtuse to subacute, up to 12.5 cm. long and 3.5 cm. wide; petiole short, 9 mm. or more long. Inflorescence much surpassing the leaf, up to 32 cm. long, subtended by a prominent spathe about 3-3.5 cm. long, terminating in an elongate, subdensely many-flowered raceme. Floral bracts conspicuous, spreading. Flowers relatively large, bilabiate,

purple. Dorsal sepal ovate, subacute, 1-1.2 cm. long, 7- to 9-nerved. Lateral sepals slightly smaller, obliquely ovate, connate to the middle. Petals many times smaller than the sepals, transversely oval, thickened near the margins. Lip subequaling the petals, transversely rhombic, subacute, with a prominent transverse, fleshy ridge across the middle. This description was compiled from the type specimen.

Amazonas: Prov. of Chachapoyas, Cerros Calla Calla, 5-7 km. above Leimebamba, on road to Balsas, in region of "San Miguel," 2,400 m., rare, *Hutchison & Bennett 4551*.

*Stelis melicoides* Schltr. Fedde Repert. Beih. 9: 66. 1921. = *S. elongata* HBK. Nov. Gen. et Sp. 1: 363. 1816.

***Stelis nanegalensis* Lindl. Fol. Orch. Stelis 8, no. 54. 1858.**

Plant caespitose, medium-sized, up to 30 cm. tall. Stems 5-14 cm. long, with 2 or 3 loose tubular sheaths. Leaf petioled; lamina elliptic to oblong-elliptic, obtuse or subacute, 5.5-14 cm. long, rarely up to 4.5 cm. wide; petiole up to 2.8 cm. long. Inflorescence solitary, usually more or less surpassing the leaf, loosely many-flowered, lax to arcuate. Flowers rather large. Sepals subequal, 3- to 5-nerved. Dorsal sepal broadly ovate, obtuse, up to about 6 mm. long. Lateral sepals obliquely and broadly ovate. Petals much smaller, reniform, with the upper part very fleshy and broadly rounded. Lip smaller than the petals, subquadrate, truncate in front, with a fleshy transverse ridge through the middle.

Amazonas: Prov. of Chachapoyas, Cerros Calla Calla, 5 km. above Leimebamba, on road to Balsas, 2,400 m., flowers pale yellow-green, *Hutchison & Bennett 4562*.—Huánuco: Prov. of Huánuco, Carpish, about 2,750 m., epiphyte in thicket, flowers light olivaceous yellow with darker petals, *Asplund 12796*. (In this collection the rachis is mostly strongly fractiflex.) Ecuador (type).

*Stelis nephropetala* Schltr. Fedde Repert. Beih. 9: 66. 1921. = *S. Jamesonii* Lindl. var. *parviflora* Garay, Canad. Journ. Bot. 34: 352. 1956.

***Stelis oblonga* (Ruíz & Pav.) Willd. Sp. Pl. 4: 139. 1805. *Humboldtia oblonga* Ruíz & Pav. Syst. Veg. Fl. Peruv. et Chil. 1: 236. 1798. *S. floribunda* HBK. Nov. Gen. et Sp. 1: 362. 1816. *S. insignis* Ames Sched. Orch. 1: 5. 1922.**

***Stelis pardipes* Reichb. f. Beitr. Orch. Centr.-Am. 96. 1866. *Stelis trisetata* Lindl. var. *pardipes* (Reichb. f.) C. Schweinf., Bot. Mus. Leafl. Harvard Univ. 15: 24. 1951.**

*Stelis phaeomelina* Schltr., Fedde Repert. 27: 45. 1929. = *S. Ottonis* Schltr. l.c.

*Stelis piestopus* Schltr. Fedde Repert. Beih. 9: 67. 1921. = **S. tri-cardium** Lindl. Fol. Orch. Stelis 14, no. 101. 1858.

*Stelis polycarpa* Schltr., Fedde Repert. 27: 46. 1929. = **S. aviceps** Lindl. Fol. Orch. Stelis 16, no. 121. 1858.

**Stelis Purdiei** Lindl. Fol. Orch. Stelis 5, no. 31. 1858. *S. Lindenii* C. Schweinf., Fieldiana, Bot. 30, no. 1: 201. 1958.

**Stelis purpurascens** A. Rich. & Gal., Ann. Sci. Nat. ser. 3, 3: 18. 1845. For description see *S. thecoglossa* Reichb. f. now regarded as synonymous.

**Stelis pusilla** HBK. Nov. Gen. et Sp. 1: 361. 1816. *S. apiculata* Lindl. Fol. Orch. Stelis 11, no. 76. 1858.

Plant small, with a more or less distinct ascending rhizome. Stems commonly approximate, short, about 2-5 cm. long, mostly concealed by 2 or 3 tubular, evanescent sheaths. Leaf oblanceolate-linear to elliptic-oblanceolate, very gradually narrowed below to a more or less distinct petiole, 2-5 cm. long, rarely up to 6.5 mm. wide. Inflorescences commonly 1 or 2, more or less surpassing the leaf, many-flowered, commonly dense or subdense, up to 9 cm. long, erect to lax. Flowers very small, usually light yellow. Sepals subequal, broadly ovate, acute, 3-nerved. Dorsal sepal about 2 mm. long. Lateral sepals slightly smaller. Petals much smaller than the sepals, transversely oval, thickened along the rounded margins. Lip about as large as the petals, obovate-subquadrate, abruptly acute in the middle of the truncate apex, fleshy-thickened in the center.

Amazonas: Prov. of Chachapoyas, Cerros Calla Calla, 15 km. above Leimebamba, on road to Balsas, 2,950 m., flowers dull white, *Hutchison & Bennett 4667*; Same locality, 19 km. above Leimebamba, 3,100 m., flowers pale yellow-green, *Hutchison & Wright 6941*. Also Colombia and Ecuador (type).

*Stelis recurvula* Schltr. Fedde Repert. Beih. 9: 68. 1921. = **S. hylophila** Reichb. f., Bonpl. 3: 241. 1855.

*Stelis revoluta* (Ruíz & Pav.) Willd. Sp. Pl. 4: 140. 1806. = **Pleurothallis revoluta** (Ruíz & Pav.) Garay, Caldasia 8, no. 40: 520. 1962, not *Pleurothallis lanceolata* Lindl.

*Stelis rhizomatosa* Schltr. Fedde Repert. Beih. 9: 69. 1921. = **S. trichorrhachis** Reichb. f., Bonpl. 3: 71. 1855.

*Stelis simacoensis* Schltr., Fedde Repert. 27: 47. 1929. = **S. virens** Schltr., Fedde Repert. 12: 484. 1913.

*Stelis superbiens* Lindl. Fol. Orch. Stelis 8, no. 57. 1858. = **S. argentata** Lindl., Bot. Reg. 28, Misc. 64, no. 78. 1842.



**Stelis tenuicaulis** Lindl. Fol. Orch. Stelis 16, no. 119. 1858. *S. ascensor* C. Schweinf., Bot. Mus. Leaflet. Harvard Univ. 15: 10, t. 5. 1951. *S. curvicarina* C. Schweinf., Bot. Mus. Leaflet. Harvard Univ. 15: 14, t. 7. 1951.

*Stelis Tessmannii* Mansf., Notizbl. Bot. Gart. Berlin 10: 238. 1928. = **S. nana** Lindl. Fol. Orch. Stelis 16, no. 122. 1858.

*Stelis thecoglossa* Reichb. f. Beitr. Orch. Centr.-Am. 93. 1866. = **S. purpurascens** A. Rich. & Gal., Ann. Sci. Nat. ser. 3, 3: 18. 1845.

**Stelis tricardium** Lindl. Fol. Orch. Stelis 14, no. 101. 1858. *S. piestopus* Schltr. Fedde Repert. Beih. 9: 67. 1921.

**Stelis trichorrhachis** Reichb. f., Bonpl. 3: 71. 1855. *S. rhizomatosa* Schltr. Fedde Repert. Beih. 9: 69. 1921.

*Stelis trisetata* Lindl. Fol. Orch. Stelis 17, no. 126. 1858. = **S. biserrula** Lindl. Fol. Orch. Stelis 16, no. 120. 1858.

*Stelis trisetata* Lindl. var. *pardipes* (Reichb. f.) C. Schweinf., Bot. Mus. Leaflet. Harvard Univ. 15: 24. 1951. = **S. pardipes** Reichb. f. Beitr. Orch. Centr.-Am. 96. 1866.

*Stelis uninervia* C. Schweinf., Bot. Mus. Leaflet. Harvard Univ. 15: 25, t. 13. 1951. = **S. macra** Schltr. Fedde Repert. Beih. 9: 65. 1921.

**Stelis virens** Schltr., Fedde Repert. 12: 484. 1913. *S. simacoensis* Schltr., Fedde Repert. 27: 47. 1929. For description of this species, see *S. simacoensis* Schltr., now regarded as a synonym.

*Stelis viridipurpurea* Lindl. Fol. Orch. Stelis 3, no. 13. 1858. = **S. papaquerensis** Reichb. f., Linnaea 22: 822. 1849.

**Stelis vulcani** Reichb. f. Otia Bot. Hamb. 1: 19, no. 73. 1878.

Plant medium-sized. Stems clustered, up to 10.5 cm. long, mostly enclosed by 3 tubular sheaths of which the uppermost is longest and loose. Leaf petioled; lamina elliptic-oblong or rarely elliptic, obtuse, cuneate below, up to 10.5 cm. long and 3.3 cm. wide; petiole channelled, about 2 cm. long. Inflorescences 1 or 2, much surpassing the leaf, erect or arcuate, subdensely many-flowered, up to 23 cm. long. Flowers small, bilabiate, greenish white or greenish yellow. Sepals 3-nerved. Dorsal sepal elliptic-lanceolate, acute, up to 5.7 mm. long. Lateral sepals obliquely elliptic-oblong, connate into a more or less bilobed lamina which is distinctly shorter than the dorsal sepal. Petals much smaller than the sepals, transversely rhombic-oval with the upper part fleshy-thickened. Lip nearly as large as the petals, rhombic-ovate, obtuse or subacute, subsimple to more or less distinctly 3-lobed, with a large bilobed, fleshy thickening across the middle.

Amazonas: Prov. of Chachapoyas, Cerros Calla Calla, 18 km. above Leimebamba, on road to Balsas, 3,100 m., in deep shade, flowers cream-color, *Hutchison & Wright 5600*.—Cuzco: "Pillahuata," Cerro de Cusilluyoc, 3,000–3,300 m., epiphyte in thicket in valley of páramo, *Pennell 14118*.—Junín: Prov. of Tarma, Agua Dulce, 1,900 m., on tree in low highland forest, *Woytkowski 35477*. Also Venezuela, Colombia, and Ecuador (type).

*Stelis Weberbaueri* Schltr. Fedde Repert. Beih. 9: 70. 1921.

*Masdevallia caudata* Lindl. Gen. & Sp. Orch. 193. 1833. Woolward, The Genus *Masdevallia*, pt. 3 (1892), t. 129.

Plant medium-sized. Stems caespitose, slender, up to 6.5 cm. high. Leaf oblanceolate to narrowly elliptic, gradually narrowed to a slender elongate petiole; lamina up to 10.5 cm. long and 2.4 cm. wide, acute; petiole about 5 cm. or less long. Peduncle filiform, up to 15 cm. long. Flower large for the plant. Sepals connate into a short cup below. Dorsal sepal (free portion) broadly elliptic-ovate, abruptly contracted into a slender tail; lamina about 2 cm. or less long, and nearly as wide, reddish yellow or white; tail yellow, about 8 cm. or less long. Lateral sepals obliquely round-ovate, slightly smaller. Petals much smaller than the sepals, oblong, abruptly contracted above in front, 3-toothed at the apex, provided with a prominent tooth near the base in front, about 5–6 mm. long. Lip pandurate-oblong, broadly obtuse, cuneate at base, about 5.2 mm. long and 2 mm. wide below, with a pair of longitudinal keels.

Junín: Chanchamayo, 2,000 m., *Steumpfle 1167-1*. Also Colombia (type) and Venezuela.

*Masdevallia grandiflora* C. Schweinf., Bot. Mus. Leaflet. Harvard Univ. 15: 26, t. 14. 1951. = *M. pumila* Poepp. & Endl. Nov. Gen. ac Sp. 2: 6, t. 108C. 1837 (poorly illustrated).

*Masdevallia pumila* Poepp. & Endl. Nov. Gen. & Sp. 2: 6, t. 108C. 1837. *M. grandiflora* C. Schweinf., Bot. Mus. Leaflet. Harvard Univ. 15: 26, t. 14. 1951.

*Masdevallia simula* Reichb. f., Gard. Chron. n. ser. 3: 8. 1875; Woolward, The Genus *Masdevallia*, pt. 1 (1890), t. 125.

Plant very small, up to 7 cm. high. Stems caespitose, abbreviated, up to 1.5 cm. long, concealed by 1 or more loose, tubular sheaths. Leaf linear to narrowly oblanceolate-oblong, commonly curved, about 6 cm. long or less, obtuse with a minutely tridenticulate apex, very fleshy. Inflorescence 1- to 3-flowered, much shorter than the leaves. Flowers small but large for the plant, pale yellow or greenish, transversely barred or spotted with crimson. Dorsal sepal ovate-lanceolate, cucullate, acuminate to a blunt point, about 5–8.5 mm. long. Lateral sepals obliquely ovate, abruptly acuminate or shortly caudate, apparently a little shorter

than the dorsal sepal. Petals about one-third as long as the sepals, rhombic-quadrate, obtuse or acute, with a prominent angle in front. Lip about as large as the petals, from a slender claw abruptly dilated into a round-ovate lamina which is 3-lobed at the base with a pair of small triangular lobules.

Amazonas: Prov. of Bongará, at Kms. 327-329 on Rioja road, between Pomacocha and Puente Ingenio, 2,160-2,210 m., abundant on tree trunks in deep gorge near stream, leaves succulent with central purple line above and purplish spotted on back, *Hutchison & Wright 3925, 6786*. Also Central America, Colombia (type), Ecuador, and Brazil.

### *Masdevallia Wurdackii* C. Schweinfurth sp. nov.

Herba mediocris, cum flore magno. Caules abbreviati. Folium longe petiolatum; lamina anguste elliptico-obovata, obtusa, inferne sensim angustata. Scapus erectus, uniflorus, folium subaequans. Sepalum dorsale obovato-oblongum, valde cucullatum, in caudam perlongam extensum. Sepala lateralia minora, oblique oblongo-lanceolata, in caudam similem extensa. Petala multo minora oblique ligulata, apice late truncata, prope apicem angulata, in basi lobo triangulari-ovato praedita. Labellum ad stipitem liberam articulatum, oblongo-oblongum, late obtusum, basi angusta cum callo V-formi ornata. Columna generis.

Plant medium-sized, epiphytic, with a very large flower. Stems abbreviated, caespitose, about 1.9 cm. or less long. Leaf long-petioled; lamina narrowly elliptic-obovate, 6.5-7.5 cm. long, obtuse with a minute apicule, gradually cuneate-narrowed below; petiole slender, channelled, about 3.2 cm. long, reddish-purple. Scape 1-flowered, slender, a little shorter or longer than the erect leaf, 10-12 cm. long. Pedicel about 2 cm. long, clasped below by a tubular, acuminate, brownish sheath. Flower very large, sepals cream-color densely speckled with purple-brown. Dorsal sepal (lamina) obovate-oblong, strongly cucullate, about 3-4 cm. long and 1.2 cm. or more wide if forcibly expanded, more or less abruptly contracted into a tail up to 8.3 cm. long. Lateral sepals somewhat smaller, obliquely oblong-lanceolate, about 2.5-3 cm. long and 5.5-9 mm. wide, contracted into a tail up to 9.2 cm. long. Petals much smaller, obliquely ligulate, irregularly lobulate at the truncate apex, abruptly contracted and angled just below the apex, provided with a conspicuous ovate-triangular lobe at the base, about 6 mm. long. Lip attached to a long free stipe, oblong-oblong, broadly obtuse at the apex with a small pyriform callus, about 8.5 mm. long, fleshy at the narrow rounded base with a V-shaped callus.

This species seems to be allied to the Colombian *Masdevallia schizantha* Kränzl. (in Notizbl. Bot. Gard. u. Mus. Berl. 8: 134. 1922), but differs in having larger flowers with very dissimilar petals and lip.

Amazonas: Prov. of Bongará, 2-4 km. west-southwest (245°) of Pomacocha, 2,200-2,400 m. alt., low epiphyte in montane high rain forest, sepals cream-color speckled with purple-brown, petals white, column speckled with purple-brown, *Wurdack 859* (type in U. S. Nat. Herb. 2403873).

**Lepanthes gargantua** Reichb. f. *Xen. Orch.* 1: 150. 1856.

Plant large, stout, epiphytic. Stems erect, about 28 cm. or less high, entirely concealed by numerous, close, tubular, usually subglabrous sheaths with a conspicuously spreading mouth. Leaf erect, shortly petioled; lamina broadly ovate or elliptic-ovate, acuminate with a minutely tridenticulate apex, rounded or broadly cuneate at the base, up to 19 cm. long and 8 cm. wide. Racemes 2 to 6, more or less shorter than the leaf, densely several- to many-flowered above, up to 7.5 cm. long. Flowers small, but large for the genus. Sepals connate at base. Dorsal sepal broadly triangular-ovate, acute or apiculate, 3-nerved, about 6 mm. long. Lateral sepals obliquely ovate, abruptly acute or apiculate, connate into a bilobed lamina which is a little broader than the dorsal sepal. Petals much smaller than the sepals, transversely bilobed, the dorsal lobe being ovate-oblong and rounded at the apex, and the anterior lobe narrower and obliquely lanceolate. Lip smaller than the petals, 3-lobed with the lateral lobes oblong-peltate and ciliate and the mid-lobe minute, acute-angled.

Amazonas: Prov. of Chachapoyas, Cerros Calla Calla, 18 km. above Leimebamba at Km. 410 on road to Balsas, 3,100 m., epiphyte in open forest below road, *Hutchison & Wright 5695*. (The cauline sheaths in this collection are hispidulous.) Ecuador (type).

**Lepanthes Nummularia** Reichb. f., *Xen. Orch.* 1: 142. 1856.

Plant very small. Primary stem long-creeping, hispid. Secondary stems abbreviated, concealed by a loose tubular sheath. Leaf very shortly petioled; lamina elliptic to oval, obtuse with a tridenticulate apex, broadly cuneate below, about 6–8 mm. long, up to 6 mm. wide. Peduncle very short, 1-flowered. Flower very small, yellow, membranaceous. Dorsal sepal round-ovate, obtuse to acute, about 1.7 mm. long. Lateral sepals connate into a subequal bilobed lamina. Petals much smaller, obliquely oblong-lanceolate. Lip minute, low, transverse, 3-lobed.

Amazonas: Prov. of Bagua, Montenegro-Chisiaco, "ceja de selva," 500–700 m., epiphyte, flowers yellow, *Sagástegui 5935*. Ecuador (type).

**Lepanthes papyrophylla** Reichb. f. *Xen. Orch.* 1: 151. 1856.

Plant caespitose, medium-sized. Stem slender, about 11 cm. or less tall, concealed by many close, tubular, minutely velutinous sheaths with a spreading, hispid mouth. Leaf very shortly petioled; lamina ovate, abruptly acuminate or caudate with a tridenticulate apex (the middle tooth subulate and protruding), rounded at the base, about 7 cm. long and 2–2.7 cm. wide. Inflorescences commonly solitary, about half as long as the leaf, densely several- to many-flowered above. Dorsal sepal triangular-lanceolate to triangular-ovate, acuminate or long-acuminate, about 8.4 mm. long. Lateral sepals similar, oblique, connate to the middle. Petals transverse, bilobed with the dorsal lobe broadly ovate and rounded at the apex and the anterior lobe smaller and lanceolate. Lip very small, bilobed with a minute tooth in the deep sinus; lateral lobes dolabriform with thickened rounded margins.

Huánuco: Prov. of Huánuco, Carpish, about 2,700 m., on cliff, flowers pale yellow, *Asplund 12762*. Ecuador (type).

**Pleurothallis acuminata** (HBK.) Lindl. Bot. Reg. 28, Misc. 70, no. 13. 1842. *P. aurea* Lindl., Ann. & Mag. Nat. Hist. 12: 397. 1843. *Dendrobium acuminatum* HBK. Nov. Gen. et Sp. 1: 357. 1816.

**Pleurothallis agathophylla** Reichb. f., Xen. Orch. 3: 25. 1881.

Plant small, with a long-creeping rhizome. Stems short, more or less flattened especially above, up to 4 cm. long, distant, about 1–2.5 cm. apart. Leaf erect, sessile, oval to ovate-elliptic, acute or obtuse at the minutely tridenticulate apex, cartilaginous, up to 3 cm. long and 1.7 cm. wide. Racemes 1 to 3, much shorter than the leaf, about 1.5 cm. long, loosely 1- to 3-flowered. Flowers small, ringent, bilabiate. Dorsal sepal ligulate, abruptly acute, 3-nerved. Lateral sepals connate into an ovate-lanceolate, deeply bidentate lamina which is subequally long with the dorsal sepal. Petals much smaller, rhombic-oblancheolate, oblique, acute, irregularly serrate above. Lip larger than the petals, triangular-ovate with a cordate base, rounded-obtuse with a minutely serrulate apex. Column slender, 3-dentate above.

Loreto: Habitat not recorded, flowers maroon with cream-colored throat, *Moore 10050*. Also Bolivia (type).

**Pleurothallis arcuata** Lindl. Fol. Orch. Pleurothallis 34, no. 207. 1859.

Plant small to medium-sized. Secondary stems caespitose, 1-jointed above the base, concealed by a long tubular, evanescent sheath, up to 6 cm. long. Leaf longer than the stem, elliptic-oblancheolate, obtuse, long-narrowed below, 5.7–11 cm. long, up to 2.8 cm. wide above. Inflorescences solitary or rarely 2, much surpassing the erect leaf, up to 31 cm. tall, very loosely several- to many-flowered above the middle; rachis of raceme strongly fractiflex, about 14.5 cm. or less long. Flowers rather large, ringent. Dorsal sepal narrowly lanceolate, acuminate, cucullate, carinate, up to 15 mm. long. Lateral sepals similar, entirely connate up to the apex. Petals much smaller than the sepals, obliquely ligulate-cuneate, 3-lobulate at the broad apex, fleshy through the middle, about 3 mm. long. Lip about equaling the petals, conspicuously clawed, arcuate, simple, ovate with a subcordate base, obtuse, bilamellate, more or less conduplicate. Column about as long as the petals, arcuate, lobed and toothed at the apex.

Amazonas: Prov. of Bongará, hills south-southeast (150°) of Yamborasbamba, 2,100–2,400 m., occasional low epiphyte in moist high forest, flowers pale yellow-green heavily spotted with brown, *Wurdack 1046*. Brazil (type).

*Pleurothallis aurea* Lindl., Ann. & Mag. Nat. Hist. 12: 397. 1843.  
= **P. acuminata** (HBK.) Lindl., Bot. Reg. 28, Misc. 70, no. 13. 1842.

***Pleurothallis bracteosa* C. Schweinfurth sp. nov.**

Herba mediocris, caespitosa. Caules a basi leviter decumbenti erecti, vaginis paucis tubulatis praediti. Folium erectum, oblanceolato-oblongum, obtusum, in basim subpetiolatam, sensim angustatum. Inflorescentia unica, folio longior, superne dense multiflora, in basi vagina inconspicua subtenta. Bracteae florales comparate magnae, ovaes, concavae. Flores parvi. Sepala uninervia, extus valde carinata. Sepalum dorsale lanceolatum, obtusum. Sepala lateralia similia, ovato-lanceolata, acuta, leviter obliqua. Petala quam sepala multo minora, oblongo-ligulata, truncato-obtusa. Labellum expansum ovato-subquadratum, subsessile, basi truncatum, apice rotundatum, superne utrinque leviter incisum igitur subtrilobatum. Columna brevis, crassa.

Plant medium-sized, caespitose. Roots fibrous, numerous, glabrous. Stems erect from a gently decumbent base, unifoliate, up to 8 cm. high, provided with three or four tubular sheaths which are very short and imbricating below and much longer upward. Leaf erect, oblong-oblanceolate, gradually narrowed below into an indistinct sulcate petiole, obtuse with a minutely retuse and apiculate apex, coriaceous, up to 11.6 cm. long and 1.4 cm. wide. marginate. Inflorescence solitary, erect-ascending, exceeding the leaf, about 15 cm. long, many-flowered above; peduncle slender, provided with three distant, short, tubular sheaths, about 3.5 cm. long, subtended at the base by an inconspicuous membranaceous spathe about 9 mm. long; raceme about 11.7 cm. long, rather loose below and dense above with relatively large oval, concave, scarious bracts which are up to 5 mm. long. Flowers very small, membranaceous, more or less appressed, exceeding the bracts. Sepals somewhat connate at the base, spreading, 1-nerved, dorsally carinate. Dorsal sepal lanceolate, obtuse, about 3.7 mm. long and 2 mm. wide, with the upper margins cellular-ciliate. Lateral sepals similar, ovate-lanceolate, acute, slightly oblique, about 3.8 mm. long and 2 mm. wide, with the upper margins sparingly cellular-ciliate. Petals much smaller than the sepals, oblong-ligulate, truncate-obtuse, 1-nerved, about 2 mm. long and 0.9 mm. wide. Lip longitudinally concave and fleshy below, ovate-subquadrate when expanded, subsessile with a truncate base, slightly indented on each side above, with a rounded terminal lobule which is minutely erose and verrucose on the inner surface, acute at the very tip, about 2.5 mm. long and 2 mm. wide below when expanded. Column short and stout, about 1.5 mm. high.

*Pleurothallis bracteosa* seems to be closely allied to the Colombian *P. stelidioides* Schltr., but differs from that species in having longer leaves, a stouter inflorescence, very dissimilar floral bracts, 1-nerved sepals and shorter petals.

Cuzco: Prov. of Urubamba, in ruins of Machu-Picchu, at 2,400 m., November 5, 1957, *Paul C. Hutchison 1772*. (Type in Herb. Oakes Ames No. 090572.)

This plant, collected in living condition, was pressed November 28, 1960, and is cultivated at the University of California Botanical Garden, No. 58. 140.

**Pleurothallis Buchtienii** Schltr., Fedde Repert. Beih. 10: 66. 1922. *Pleurothallis boliviana* Schltr., Fedde Repert. 10: 453. 1912, not *P. boliviana* Reichb. f.

Plant large, slender, about 35 cm. high. Stems tall, about 30 cm. in length. Leaf erect-spreading, ovate- or oblong-lanceolate, acuminate, deeply cordate at base, 12–15 cm. long, up to 5 cm. wide below. Inflorescences abbreviated, 1-flowered, fasciated, clasped by a conduplicate spathe nearly 2 cm. long. Flowers rather large, bilabiate. Dorsal sepal elliptic-oblong, subacute, cucullate, about 1.5 cm. long. Lateral sepals connate into an oblong-lanceolate, minutely bidentate lamina which is about equally long with the dorsal sepal but slightly narrower. Petals linear, falcate, acute, distinctly shorter than the sepals. Lip elliptic-ovate, subacute, fleshy, about 1 cm. long. Column abbreviated.

Huánuco: Carpish, on Cordillera, 2,800–2,900 m., *Humbert 30950*. Bolivia (type).

**Pleurothallis cardiocrepis** Reichb. f., Xen. Orch. 3: 170. t. 299, II, 6–8. 1900.

Plant medium-sized to tall, caespitose. Stems slender, 15–40 cm. long. Leaf more or less spreading, ovate to oblong-ovate, more or less abruptly acuminate, deeply cordate at the base, 8–13.7 cm. long, up to 5 cm. wide. Inflorescences abbreviated, fasciated, 1-flowered. Flowers small, greenish-yellow with brown stripes to tan. Sepals bilabiate. Dorsal sepal oblong-ovate, acute, about 7 mm. long. Lateral sepals connate into an ovate lamina which is a little shorter and broader than the dorsal sepal. Petals falcate-linear, acute, much shorter than the sepals, with ciliolate margins. Lip broadly ovate to triangular-ovate, cordate at base, obtuse with a dorsal mucro, about 3 mm. long, with minutely denticulate margins.

Amazonas: Prov. of Chachapoyas, Cerros Calla Calla, 14 km. above Leimebamba, on road to Balsas, 2,850 m., *Hutchison & Bennett 4688*; Same locality, 19 km. above Leimebamba, 3,100 m., in open boggy brushland, flowers yellow, tan and purple-brown, *Hutchison & Bennett 4873*. Leimebamba, on hills overlooking town from west, 2,400 m., *Hutchison & Wright 5484*. Also Colombia. Habitat of type uncertain.

**Pleurothallis cardiostola** Reichb. f., Bonpl. 2: 26. 1854.

Plant rather large, caespitose. Stems slender, up to about 34 cm. long. Leaf commonly deflexed, ovate-lanceolate, long-acuminate, deeply cordate at the base, up to 15 cm. long and 5 cm. wide below. Inflorescences abbreviated, 1-flowered, fasciculate, concealed below by a conspicuous conduplicate spathe. Flowers small, yellow or creamy brown, bilabiate. Dorsal sepal broadly ovate, acute to obtuse, about 13 mm. long. Lateral sepals connate into an ovate to orbicular-ovate lamina which is subequal to the dorsal sepal. Petals distinctly smaller than the sepals, elliptic-lanceolate, acute or acuminate, with serrulate margins. Lip small, broadly ovate to triangular (sometimes appearing subtrilobed), obtuse, fleshy, 3–4 mm. long and often broader. Column abbreviated, white.

Amazonas: Prov. of Chachapoyas, Cerros Calla Calla, 7.5 km. above Leimebamba, on road to Balsas, 2,535 m., *Hutchison & Bennett* 4624; Same locality, 14 km. above Leimebamba, 2,850 m., *Hutchison & Bennett* 4686.—Junín: Oxapampa, flowers small (*Diaz*), *Bennett s.n.* Also Venezuela (type). Colombia and Ecuador.

*Pleurothallis ciliata* Knowl. & Weste. Flor. Cab. 1: t. 19. 1837. = **P. Lanceana** Lodd. Bot. Cab. 18: t. 1767. 1831.

*Pleurothallis convoluta* Kränzl., Engler Bot. Jahrb. 26: 442. 1899, not Lindl. = **P. papillisepala** Schltr. Fedde Repert. Beih. 7: 109. 1920.

***Pleurothallis crocodiliceps* Reichb. f., Bonpl. 3: 72. 1855.**

Plant medium-sized, caespitose. Stems slender, gradually dilated and narrowly bialate upward, about 22 cm. or less high. Leaf ovate-oblong, lanceolate-ovate or elliptic, acute to acuminate, abruptly rounded to subcordate at the sessile base, up to 10.5 cm. long and 4 cm. wide. Inflorescences 2 to several, 1-flowered, fascicled, with filiform peduncles about 5 cm. long. Flowers rather small, fleshy, bilabiate. Dorsal sepal narrowly oblong-lanceolate, acute or obtuse, about 13 mm. long, longitudinally concave. Lateral sepals similar, entirely connate to the obtuse apex. Petals linear or lanceolate-linear, acute, slightly wider below the middle, nearly as long as the sepals, but much narrower. Lip minute, triangular-ovate, subacute, very fleshy, concave at the apex, about 2 mm. long, produced at the base into a pair of triangular-lanceolate, membranaceous, uncinata, pubescent auricles.

Amazonas: Prov. of Chachapoyas, on middle eastern slopes of Calla Calla, near Kms. 415–418 of Leimebamba–Balsas road, 2,900–3,150 m., low epiphyte in moist ravine, flowers pale yellow with faint brown streaks at base, *Wurdack* 1736, *Hutchison & Wright* 6925.—Puno: Prov. of Carabaya, Hda. Quillabamba to Sangari, 1,000 m., epiphyte, *Vargas* 17565. Also Venezuela (type) and Colombia.

*Pleurothallis diffusa* Poepp. & Endl. Nov. Gen. ac Sp. 1: 49, t. 86. 1836. = ***Pleurothallis revoluta*** (Ruíz & Pav.) Garay, *Caldasia* 8, no. 40: 520. 1962.

*Pleurothallis diffusa* Poepp. & Endl. var. *grandiflora* C. Schweinf., Bot. Mus. Leafl. Harvard Univ. 17: 212. 1956. = ***Pleurothallis penduliflora*** Kränzl., Fedde Repert. 1: 177. 1905.

*Pleurothallis dinotherii* Reichb. f. & Warsc., Bonpl. 2: 114. 1854. = ***Pleurothallis arbuscula*** Lindl., Bot. Reg. 28, Misc. 72, no. 32. 1842.

*Pleurothallis fimbriata* Lindl. Fol. Orch. *Pleurothallis* 17, no. 92. 1859. = ***Pleurothallis Miqueliana*** (Focke) Lindl. Fol. Orch. *Pleurothallis* 17, no. 93. 1859.



*Pleurothallis fimbriabia* C. Schweinf., Bot. Mus. Leafl. Harvard Univ. 16: 50. 1953. = *Restrepia ecuadorensis* Rolfe, Kew Bull. (1892) 138.

***Pleurothallis Fritillaria* Reichb. f., Bonpl. 3: 240. 1855.**

Plant rather large. Stems slender, about 28 cm. or less long, provided at the base and in the middle with a close, elongate, tubular sheath. Leaf elliptic to elliptic-oblong, sessile at the broadly cuneate base, obtuse to subacute, up to 17.5 cm. long and 4.8 cm. wide. Inflorescences about twice longer than the leaf, 1 to 3 in number, loosely many-flowered, secund racemes, about 32 cm. or less long, with a rather prominent conduplicate sheath at the origin. Flowers rather large, with ringent segments. Dorsal sepal lanceolate-ovate, acuminate, deeply concave, about 1.8 cm. long. Lateral sepals oblong-lanceolate, acute, usually connate into an elliptic-ovate concave lamina similar to the dorsal sepal. Petals much smaller, obliquely rhombic-elliptic, more or less acute, scarcely more than one-half as long as the sepals. Lip narrowly ligulate, acute, with the margins of the anterior half strongly revolute and minutely denticulate, slightly exceeding the sepals. Column arcuate, with a pair of triangular wings above.

Amazonas: Prov. of Chachapoyas, Cerros Calla Calla, 5 km. above Leimebamba, on road to Balsas, in region called "San Miguel," 2,400 m., flowers purple or purple-mottled, *Hutchison & Bennett 4554*; Same locality, 15 km. above Leimebamba, on road to Balsas, 4,739 m., flowers translucent white mottled with dark red-purple, *Hutchison & Bennett 4739*. Ecuador (type).

*Pleurothallis genychila* Schltr. Fedde Repert. Beih. 9: 74. 1921. = *Pleurothallis revoluta* (Ruíz & Pav.) Garay, Caldasia 8, no. 40: 520. 1962.

*Pleurothallis hirsutissima* C. Schweinf., Bot. Mus. Leafl. Harvard Univ. 15: 94, t. 29. 1951. = *Restrepiella hirsutissima* (C. Schweinf.) Garay & Dunsterv. Venez. Orch. Illustr. 4: 266, t., 1966; Orch. Dig. 31: 39. 1967.

***Pleurothallis Hitchcockii* Ames Orch. 7: 117. 1922.**

Plant medium-sized, caespitose, up to 18 cm. high. Stems slender, 2.3-15 cm. long, provided with two close, tubular scarious sheaths below the middle. Leaf erect, petioled; lamina elliptic, obtuse, cuneate at base, up to 8 cm. long and 3 cm. wide; petiole up to 1.6 cm. long. Inflorescences fasciculate, 1-flowered, consisting of 1- to several flowers, subtended by a prominent conduplicate spathe about 1.6 cm. long which tardily wastes into fibres. Flowers large for the plant, bilabiate, pale yellow or greenish cream-color. Dorsal sepal lanceolate, long-acuminate, concave, about 1.8 cm. long. Lateral sepals more or less connate into a narrowly lanceolate, acuminate lamina which is subequally long with the dorsal sepal but narrower. Petals much smaller (about two-thirds) than the sepals, lanceolate-linear, with a minute lobe or tooth on the posterior margin near the base. Lip small, rhombic-ovate, 6-7 mm. long, 3-lobed, obtuse, cuneate at base; lateral lobes

relatively small, strongly falcate-decurved, narrowly oblong, with a protuberant angle near the apex on the posterior margin; mid-lobe relatively large, triangular-ovate, with a pair of small fleshy calli near the middle, tan or pink-maroon. Column minute, 3-toothed at the apex.

Amazonas: Prov. of Bagua, on forested ridge on right bank of Río Santiago, 2-3 km. above the mouth, 300-350 meters, low epiphyte, *Wurdack 2414*. Also British Guiana (type) and Venezuela.

**Pleurothallis Imraei** Lindl. *Fol. Orch. Pleurothallis* 9, no. 35. 1859. *P. vaginata* Schltr. *Fedde Repert. Beih.* 19: 197. 1923.

**Pleurothallis Lanceana** Lodd. *Bot. Cab.* 18: t. 1767. 1831. *P. ciliata* Knowl. & Westc. *Flor. Cab.* 1: t. 19. 1837.

**Pleurothallis lancipetala** (Karst.) Schltr. *Fedde Repert. Beih.* 6: 62. 1919. *Dubois-Reymondia lancipetala* Karst. *Fl. Colomb.* 1: sub t. 47. 1858.

Plant rather large, caespitose, about 26-60 cm. high. Stems slender, about 16.2-42 cm. long, entirely concealed by several close, tubular, brown-spotted, hispid sheaths which are successively longer upward. Leaf erect, narrowly lanceolate, acute or acuminate, cuneate at the sessile base, 10-18 cm. long, 1-2.3 cm. wide. Inflorescence a fascicle of abbreviated, 1-flowered peduncles. Flowers 1 to 3 at a time, small. Dorsal sepal oblong-ovate, acute, 5-11 mm. long. Lateral sepals obliquely ovate, connate to about the middle, slightly shorter than the dorsal sepal. Petals nearly as long as the sepals, from a broadly obovate base abruptly contracted to a narrow, fleshy, caudate apex. Lip much smaller than the other segments, about 1.5-5 mm. long, 3-lobed near the middle, cuneate toward the base, rounded-obtuse at the apex, shortly bicarinate in the middle; lateral lobes obovate-rounded, spreading; mid-lobe ovate, subequal to the lateral lobes or larger. Column small, 3-toothed at the apex.

Amazonas: Prov. of Chachapoyas, Cerros Calla Calla, 15 km. above Leimebamba, on road to Balsas, 2,950 m., *Hutchison & Bennett 4719*. Also Venezuela and Colombia (type). The Peruvian example of this species is much larger throughout than the Venezuelan form.

**Pleurothallis linguifera** Lindl. *Fol. Orch. Pleurothallis* 10, no. 41. 1859.

Plant rather large, variable, caespitose, up to 38 cm. high. Stems slender, about 35.5 cm. or less long, concealed below the middle by two close, tubular, maculate sheaths. Leaf erect to horizontally spreading, ovate to oblong-ovate, acuminate (often abruptly so), deeply cordate at the sessile base, up to 12 cm. long (including the basal auricles) and 5.5 cm. wide. Inflorescences fasciculate, abbreviated, 1-flowered. Flowers small to medium-sized, brown or brownish purple and yellow, bilabiate. Dorsal sepal ovate or elliptic-ovate, acute, about 12-18 (rarely

21) mm. long, and 5 (rarely 11) mm. wide. Lateral sepals entirely connate into a subequal lamina. Petals much smaller than the sepals, linear, acute, about half as long as the sepals, commonly lightly decurved. Lip ovate to ovate-oblong, obtuse (rarely abruptly acute), fleshy, about half as long as the sepals or less. Column minute.

Amazonas: Prov. of Chachapoyas, Cerros Calla Calla, 10 km. above Leimebamba, on road to Balsas, 2,700 meters, flowers golden yellow, *Hutchison & Bennett 4736* (the lip of this number is ovate); Same locality, 19 km. above Leimebamba, on road to Balsas, 3,100 m., flowers brown, *Hutchison & Wright 5526*.—Cajamarca: Prov. of Celendín, gorge of Río Marañon, above Balsas, 5 km. below summit of road to Celendín, 2,930 m., flowers brownish purple and yellow, terrestrial, *Hutchison & Wright 5343*.—Huánuco: Prov. of Huánuco, Carpish, Tingo María side, 14 km. below the summit, about 1,900 m., *Hutchison & Wright & Straw 6073*; Same locality, 2,850 m., on steep slope in "ceja de montaña," flowers light olivaceous green to maroon, *Asplund 13070* (flowers large). Also Venezuela, Colombia, Ecuador, and Bolivia (type).

***Pleurothallis longicaulis* Lindl., Bot. Reg. 28, Misc. 72, no. 26. 1842.**

Plant caespitose, small to medium-sized, up to 23 cm. high. Stems filiform, terete below, slightly enlarged and angled above, up to 18 cm. long, provided below with 2 or 3 close, tubular evanescent sheaths. Leaf erect, narrowly elliptic-oblong to linear-oblong, obtuse to subacute, sessile at the cuneate base, 2.9–6.8 cm. long, up to 1.7 cm. wide, coriaceous. Inflorescences 1 to several, shorter or slightly longer than the leaf, subdensely several- to many-flowered, with the rachis more or less arcuate above. Flowers small, campanulate, yellow or tan-yellow, membranaceous. Dorsal sepal oblong-ovate, cucullate, about 5 mm. long. Lateral sepals obliquely lanceolate-oblong, carinate, acute and apiculate, about equally long with the dorsal sepal. Petals much smaller than the sepals (about two-thirds as long), narrowly elliptic-lanceolate, acute, with the margins obscurely serrulate. Lip slightly shorter than the petals, rhombic-ovate in outline, 3-lobed near the middle, obtuse to acute, cuneate toward the base; lateral lobes small, triangular-dentiform, porrect, with the outer margins serrate; mid-lobe much larger, oblong-ovate, bicarinate at the base. Column slender, shorter than the petals, denticulate at the apex.

Amazonas: Prov. of Bongará, Río Utcubamba, 300 km. east of Olmos, at Campomiento Ingenio, 1,250 m., common, *Hutchison & Wright 6848*. Vicinity of Campomiento Ingenio, 1–3 km. up the road from Puente Ingenio to Pomacocha, 1,300–1,400 m., sepals tan-yellow, *Hutchison & Wright 3840*. El Ingenio, 1,250 m., on trees,

flowers green-vinaceous, *Sagástegui 5958*. Prov. of Bagua, between Bagua Grande and Chachapoyas, 1,200–1,300 m., epiphyte in low woods, flowers yellow, *Ferreyra 14425*. Also Brazil (type).

***Pleurothallis medicarinata* C. Schweinfurth sp. nov.**

Herba mediocris, caespitosa. Caules approximati, vaginis tubulatis, pluribus omnino celati, unifoliati. Folium erectum, breviter petiolatum; lamina ovalis, apice rotundata, inferne in sicco abrupte angustata, coriacea. Inflorescentia folium multo superans, superne dense multiflora cum floribus parvis, secundis, membranaceis. Sepala prope margines minute pubescentia, trinervia. Sepalum dorsale lanceolato-oblongum, acutum. Sepala lateralia similia, elliptico-oblonga, leviter obliqua. Petala quam sepala multo minora, oblique elliptico-oblonga, apice rotundata, uninervia. Labellum expansum ovato-oblongum, prope medium leviter angustatum et igitur subtrilobatum; discus basi medio breviter carinatus. Columna brevis, leviter arcuata.

Plant medium-sized, caespitose, up to 17.5 cm. tall. Roots numerous, fibrous, glabrous. Stems approximate, unifoliate, entirely concealed by few imbricating, tubular sheaths, 4 cm. or less long, gradually decumbent below. Leaf erect, abruptly short-petioled; petiole about 7 mm. or less long, channelled; lamina oval, rounded at the apex with a minutely retuse and apiculate tip, rather abruptly narrowed into the petiole, up to 4.3 cm. long and 2 cm. wide in the middle, coriaceous, marginate. Inflorescence far surpassing the leaf, up to 15 cm. long, with a densely many-flowered, secund raceme. Flowers small, membranaceous, campanulate in natural position. Sepals minutely pubescent near and on the margins, 3-nerved. Dorsal sepal lanceolate-oblong, about 6.9 mm. long and 2.5 mm. wide, acute. Lateral sepals similar, elliptic-oblong, about 6.5 mm. long and 2.4 mm. wide, subacute, slightly oblique. Petals much smaller than the sepals, obliquely elliptic-oblong, rounded to minutely acute at the apex, 1-nerved, about 4 mm. long and 1.6 mm. wide near the middle. Lip lightly longitudinally concave in natural position, ovate-oblong when expanded, lightly narrowed and thus subtrilobed just above the middle, lightly cordate at the sessile base, broadly rounded with erose margins in front, 3-nerved, about 4.3 mm. long and 2 mm. wide below the middle; disc with a short but prominent keel in the center of the base, lightly carinate over the lateral nerves beneath. Column shorter than the petals, lightly arcuate, terminating in a slightly denticulate wing, about 3 mm. long at the back.

*Pleurothallis medicarinata* appears to be quite distinct from all others in the alliance by reason of its median callus on the disc of the lip. Vegetatively it seems to be similar to many other species of the group centering in *P. Ghiesbreghtiana* A. Rich. & Gal.

Cuzco: Prov. of Urubamba, in ruins of Machu-Picchu, at 2,400 m. altitude, on rocks of temple, November 5, 1957, *Paul C. Hutchison 1765* (type in Herb. Univ. Calif.; Sixth Botanical Garden Expedition to the Andes, 1957–58, No. M 199545); (fragment of type in Herb. Ames No. 089670).

**Pleurothallis mentosa** Cogn., Martius Fl. Bras. 3, pt. 4: 400, t. 84, fig. 1. 1896.

Plant small, caespitose, about 7 cm. or less tall. Stems abbreviated, about 1.5 (rarely 2.5) cm. or less long, entirely concealed by 2 or 3 tubular, evanescent sheaths. Leaf erect, obovate to spatulate-oblancoelate, subacute to broadly obtuse, very gradually narrowed below, up to 6.5 cm. long and 2 cm. wide. Inflorescences 1 or 2, filiform, subequaling to much surpassing the leaf, very loosely 2- to several-flowered, with a fractiflex rachis. Flowers small, campanulate. Sepals red-brown or yellow. Dorsal sepal oblong-lanceolate, acute or acuminate, concave, about 8 mm. long. Lateral sepals obliquely oblong-lanceolate, acute, more or less connate, forming a prominent mentum with the column-foot, about as long as the dorsal sepal or slightly longer. Petals narrowly oblanceolate-oblong, rounded at the apex, about half as long as the sepals, white. Lip narrowly oblong-cuneate, entire, broadly truncate in front, about 5 mm. long, pink. Column arcuate, about as long as the petals, angulate-dilated on each side in the middle, produced into a subequally long foot.

Loreto: Habitat not specified, at sea level, in deep shade, flowers yellow, *Moore 1040*. Also Venezuela and Brazil (type).

*Pleurothallis microptera* Schltr. Fedde Repert. Beih. 7: 108. 1920. = **Restrepiella microptera** (Schltr.) Garay & Dunsterv. Venez. Orch. Illustr. 4: 266, t., 1966.

**Pleurothallis Miqueliana** (Focke) Lindl. Fol. Orch. Pleurothallis 17, no. 93. 1859. *Specklinia Miqueliana* Focke, Tidjschr. Nat. Wetensch. 2: 199. 1849. *Pleurothallis fimbriata* Lindl. Fol. Orch. Pleurothallis 17, no. 92. 1859.

*Pleurothallis misera* Lindl. Fol. Orch. Pleurothallis 36, no. 215. 1859. = **Platystele misera** (Lindl.) Garay, Bot. Mus. Leaflet. Harvard Univ. 21, no. 9: 251. 1967.

*Pleurothallis nigro-hirsuta* Kränzl., Fedde Repert. 1: 91. 1905. = **P. acuminata** (HBK.) Lindl., Bot. Reg. 28, Misc. 70, no. 13. 1842.

**Pleurothallis papillisepala** Schltr. Fedde Repert. Beih. 7: 109. 1920. *Pleurothallis convoluta* Kränzl., Engler Bot. Jahrb. 26: 442. 1899, not Lindl.

Plant medium-sized, 15-20 cm. tall. Stems caespitose, slender, 4-9 cm. long, concealed by 2-3 close, tubular, evanescent sheaths. Leaf erect, petioled; lamina ligulate or narrowly oblong, obtuse, 7-9.5 cm. long, more or less convolute, up to nearly 1 cm. wide if expanded; petiole about 1 cm. long. Inflorescences 2 or 3, somewhat shorter than the leaf, subdensely many-flowered. Flowers secund, small, greenish-white. Dorsal sepal elliptic-oblong, obtuse or subacute, cucullate, 6-7 mm. long. Lateral sepals similar, oblique, connate to the middle. Petals about half as long as the sepals, oblong-obovate or spatulate, broadly rounded at the apex. Lip oblong-ovate, broadly rounded and crenulate in front, cuneate toward the base, 3.5-4 mm. long, arcuate. Column small, trilobulate at the apex.

Cuzco: Machu-Picchu, *Dunsterville s.n.* Also Colombia (type).

**Pleurothallis penduliflora** Kränzl., Fedde Repert 1: 177. 1905. *P. diffusa* Poepp. & Endl. var. *grandiflora* C. Schweinf., Bot. Mus. Leafl. Harvard Univ. 17: 212. 1956.

*Pleurothallis peniculus* Schltr. Fedde Repert. Beih. 7: 110. 1920 = **Lepanthopsis peniculus** (Schltr.) Garay, Orch. Journ. 2, no. 10: 468, fig. 206, 17-19. 1953.

**Pleurothallis procumbens** Lindl. Fol. Orch. Pleurothallis 35, no. 212. 1859. *P. trialata* Cogn., Martius Fl. Bras. 3, pt. 4: 500, t. 100, fig. 2. 1896.

**Pleurothallis pubescens** Lindl., Hook. Comp. Bot. Mag. 2: 355. 1836. *P. Smithiana* Lindl., Bot. Reg. 29, Misc. 57, no. 79. 1843.

*Pleurothallis purpurea* (Ruíz & Pav.) Schltr. Fedde Repert. Beih. 9: 142. 1921. = **Stelis purpurea** (Ruíz & Pav.) Willd. Sp. Pl. 4: 140. 1805.

**Pleurothallis revoluta** (Ruíz & Pav.) Garay, Caldasia 8, no. 40, 520. 1962. *Humboldtia revoluta* Ruíz & Pav. Syst. Veg. Fl. Peruv. et Chil. 1: 235. 1798. *Stelis revoluta* (Ruíz & Pav.) Willd. Sp. Pl. 4: 140. 1806. *Pleurothallis diffusa* Poepp. & Endl. Nov. Gen. ac Sp. 1 49, t. 86. 1836. *Pleurothallis semipellucida* Reichb. f., Linnaea 22: 823. 1849. *Pleurothallis genychila* Schltr. Fedde Repert. Beih. 9: 74. 1921.

**Pleurothallis rhodantha** Reichb. f., Linnaea 22: 825. 1849.

Plant large, over 30 cm. tall. Stems slender, more than 12 cm. long, mostly concealed by about 3 close, tubular sheaths which are longer upward. Leaf petioled; lamina elliptic or elliptic-oblong, broadly obtuse, cuneate below, about 9-10.5 cm. long, up to 4 cm. wide, coriaceous; petiole about 1 cm. long. Inflorescences 2 or more, much surpassing the leaf, flexuous-suberect, about 20 cm. long, racemose, densely many-flowered with the flowers secund. Flowers small, typically yellow with rose stripes. Dorsal sepal narrowly lanceolate, acuminate, cucullate, about 8.2 mm. long. Lateral sepals very similar but slightly longer, connate near the base. Petals elliptic-oblong, subacute, nearly half as long as the sepals, 3-nerved. Lip triangular-ovate, subobtuse, about 3 mm. long, with the rounded sides at the base (lateral lobes) extending onto the middle of the disc.

Amazonas: Prov. of Chachapoyas, Cerros Calla Calla, 15 km. above Leimebamba, on road to Balsas, 2,950 m., *Hutchison & Bennett 4682*. Also Colombia (type).

*Pleurothallis rhynchantha* (Reichb. f. & Warsc.) L. Wms., Bot. Mus. Leafl. Harvard Univ. 7: 188. 1939. = **Barbosella cucullata** (Lindl.) Schltr., Fedde Repert. 15: 261. 1918.

**Pleurothallis rubroviridis** Lindl., Ann. & Mag. Nat. Hist. ser. 3, 1: 327. 1858.

Plant medium-sized. Stems approximate on an abbreviated rhizome, erect or arcuate, narrowly winged and bialate above, up to 20.5 cm. long. Leaf erect, elliptic, sessile, subacute to obtuse, up to 7 cm. long and 2.5 cm. wide. Inflorescence abbreviated, about 3-flowered. Flowers very small, finely pubescent, with the segments subparallel and more or less connate below, typically green and red. Dorsal sepal obovate-oblong, acute, about 4.5 mm. long. Lateral sepals obliquely ovate-oblong, more or less connate, slightly shorter than the dorsal sepal. Petals about half as long as the sepals, obliquely oblanceolate linear, truncate-obtuse. Lip about as long as the petals, elliptic-oblong, broadly obtuse, bilamellate throughout.

Huánuco: Prov. of Huánuco, Tingo María, epiphyte, flowers dark yellow, *Asplund 12165*. Also Cuba (type).

**Pleurothallis scandens** Ames Sched. Orch. 5: 18, fig. 4. 1923.

Plant large, sprawling. Stems very slender, superposed, branching, with the largest members up to 34.5 cm. long, mostly concealed by several close, tubular, more or less hispid sheaths. Leaf linear to linear-lanceolate, sessile, acuminate, cuneate at the base, up to 11.7 cm. long and 6 mm. wide. Inflorescences axillary, abbreviated, 1-flowered, clustered. Flowers very small. Dorsal sepal ovate-lanceolate, acute or acuminate, concave, about 4-6 mm. long. Lateral sepals obliquely ovate-lanceolate to elliptic-oblong, more or less connate below, slightly shorter than the dorsal sepal. Petals obliquely triangular-lanceolate, rather abruptly narrowed through the upper half, thickened above, subacute, about as long as the dorsal sepal. Lip much smaller than the sepals, ovate-oblong, pandurate or 3-lobed, with obliquely semiovate lateral lobes, broadly obtuse, bicarinate throughout, rarely up to 2.5 mm. long.

Huánuco: Prov. of Huánuco, west of Divisoria, 1,400 m., epiphyte in forest, *Asplund 12527*. Also Costa Rica (type), Ecuador, and Venezuela (var. *simplicicaulis* C. Schweinf.).

**Pleurothallis sclerophylla** Lindl., Bot. Reg. 21, sub t. 1797, no. 31, 1836; Fol. Orch. Pleurothallis 34, no. 204. 1859. *P. stenopetala* Lodd. ex Lindl., Bot. Reg. 24, Misc. 95, no. 182. 1838.

*Pleurothallis semipellucida* Reichb. f., Linnaea 22: 823. 1849. = *P. revoluta* (Ruíz & Pav.) Garay, Caldasia 8, no. 40: 520. 1962.

*Pleurothallis semipellucida* Reichb. f. var. *grandiflora* C. Schweinf., Bot. Mus. Leaflet. Harvard Univ. 15: 102. 1951. = *P. penduliflora* Kränzl., Fedde Repert. 1: 177. 1905.

**Pleurothallis setigera** Lindl. Fol. Orch. Pleurothallis 38, no. 232. 1859.

Plant small, caespitose, about 6 cm. or less high. Stems abbreviated, concealed by about 3 membranaceous, tubular, imbricating sheaths. Leaf oblanceolate, sub-

acute to obtuse, very gradually narrowed to a slender petioled base, up to 3 cm. long and 4 mm. wide, marginate. Inflorescences commonly solitary, much surpassing the leaf, filiform, very loosely about 3- to 6-flowered, with a strongly fractiflex rachis. Flowers small but large for the plant, yellowish white often streaked with purple, membranaceous. Dorsal sepal narrowly lanceolate, long-caudate, about 8-11 mm. long, cucullate. Lateral sepals very similar, obliquely lanceolate, connate at the base. Petals about half as long as the sepals, lanceolate, caudate, with the sides below lacerate-fimbriate. Lip triangular-ovate or rhombic-ovate, broadly obtuse with a serrulate margin, cuneate toward the base, about 3-4 mm. long; disc bicarinate below.

Cuzco: Prov. of Calca, Lares to Hiesbabuenayocc, 2,910-3,250 m., in humus, *Vargas* 11952. Prov. of Covención, Choquellwanca, 1,450 m., epiphyte, *Vargas* 12949. Also Ecuador (type), Colombia, and Venezuela.

*Pleurothallis Smithiana* Lindl. Bot. Reg. 29, Misc. 57, no. 79. 1843. = *Pleurothallis pubescens* Lindl., Hook. Comp. Bot. Mag. 2: 355. 1836.

*Pleurothallis spathata* Schltr., Fedde Repert. 27: 54. 1929. = *Pleurothallis loranthophylla* Reichb. f., Bot. Zeit. 10: 674. 1852.

*Pleurothallis stelidioides* Schltr. Fedde Repert. Beih. 7: 116. 1920; Mansf., Fedde Repert. Beih. 57, t. 40, nr. 155. 1929.

Plant small, caespitose, up to 18 cm. tall. Stems slender, up to 7 cm. long, mostly concealed by 2 close, tubular sheaths. Leaf shortly petioled; lamina narrowly elliptic-oblong to oblanceolate, obtuse, 3-6.5 cm. long, up to 1.2 cm. wide; petiole up to 1 cm. long. Inflorescences 1 or 2, slender, lax, almost twice surpassing the leaf, subdensely many-flowered. Flowers very small, secund, membranaceous, white with pale brown stripes. Dorsal sepal ovate-lanceolate, acute or shortly acuminate, concave, about 4 mm. long. Lateral sepals similar, oblique. Petals much smaller, obliquely linear-oblong or elliptic-oblong, obtuse. Lip ovate-oblong, rounded-obtuse, about 2.5 mm. long.

Amazonas: Prov. of Chachapoyas, Cerros Calla Calla, 18 km. above Leimebamba, on road to Balsas, 3,100 m., *Hutchison & Wright* 5708. Also Colombia (type) and Ecuador.

*Pleurothallis stenopetala* Lodd. ex Lindl., Bot. Reg. 24, Misc. 95, no. 182. 1838. = *Pleurothallis sclerophylla* Lindl., Bot. Reg. 21: sub t. 1797, no. 31. 1836.

*Pleurothallis trialata* Cogn., Martius Fl. Bras. 3, pt. 4: 500, t. 100, fig. 2. 1896. = *Pleurothallis procumbens* Lindl. Fol. Orch. Pleurothallis 35, no. 212. 1859.

*Pleurothallis vaginata* Schltr. Fedde Repert. Beih. 19: 197. 1923. = *Pleurothallis Imraei* Lindl. Fol. Orch. Pleurothallis 9, no. 35. 1859. Also Ecuador.



**Pleurothallis Wageneriana** Kl., *Allgem. Gartenz.*, 20: 274. 1852.

Plant medium-sized to large, 16 to about 33 cm. tall, with a creeping rhizome. Stems stout, 7–28 cm. tall, 5–10 mm. apart on the rhizome, mostly concealed by 3–6 tubular sheaths. Leaf erect, sessile, narrowly elliptic-oblong, acute, cuneate at base, fleshy-coriaceous, about 9–14 cm. long, up to 3 cm. wide. Inflorescence abbreviated, a succession of single, short-stemmed, small, fleshy flowers. Dorsal sepal elliptic-ovate or ovate-lanceolate, acute, 7–11.5 mm. long. Lateral sepals similar but slightly shorter, oblique, connate but readily separated. Petals much smaller than the sepals, oblong-linear to broadly ligulate, obtuse to acute, thin in texture. Lip about as long as the petals, ovate or oblong-ovate when expanded, 3-lobed below the middle, rounded-obtuse in front, cuneate at base, about 4 mm. long; lateral lobes very small, obliquely oblong-lanceolate to semi-ovate, porrect; mid-lobe much larger, oblong-obovate, fleshy, densely papillose.

Amazonas: Prov. of Bongará, vicinity of Campomiento Ingenio, 1–3 km. from Puente Ingenio, up the road to Pomacocha, 1,300–1,400 m., sepals pale orange, lateral sepals purplish-dotted, petals pale orange, lip dark purple, *Hutchison & Wright 3832*. Between Pomacocha and Campomiento Ingenio, near the road, 1,880 m., *Hutchison & Wright 4020*. Between Río Utcubamba and Lake Pomacocha on the Rioja road, 17 km. above and north of Puente Ingenio, 1,750 m., flowers pale tan-yellow, lower sepals tinged with maroon on face, lip purplish red, *Hutchison & Wright 6840* (plant large). Also Colombia and Venezuela.

**Lepanthopsis peniculus** (Schltr.) Garay, *Orch. Journ.* 2, no. 10; 468, fig. 206, 17–19. 1953. *Pleurothallis peniculus* Schltr. *Fedde Repert. Beih.* 7: 110. 1920; Mansf. *Fedde Repert. Beih.* 57, t. 38, nr. 146. 1929.

Plant small, slender, erect, 11–17 cm. high. Stems slender, up to 9 cm. long, entirely concealed by 5–7 close, tubular sheaths with an ovate, acuminate, ciliate mouth. Leaf short-petioled; lamina oblong-ligulate or narrowly elliptic, subacute, cuneate below, thickly coriaceous, about 3–4 cm. long and 7.5–9 mm. wide; petiole short, 4–6 mm. long. Inflorescences 1 or 2, almost twice as long as the leaf, subdensely many-flowered, secund. Flowers very small, thin, glabrous. Dorsal sepal ovate-lanceolate, long-attenuate-caudate, about 5.5–6.7 mm. long. Lateral sepals similar, slightly longer and narrower, oblique. Petals much smaller, elliptic-oblong, obtuse. Lip about as long as the petals, deeply 3-lobed below the middle, cordate at base, up to 2 mm. long; lateral lobes dolabriform with truncate sides; mid-lobe oblong to linear, obtuse; disc with a more or less distinct pair of oblong-conic horns in front of the lateral lobes. Column minute.

Amazonas: Prov. of Chachapoyas, Cerros Calla Calla, 15 km. above Leimebamba, on road to Balsas, 2,950 m., flowers translucent-white, *Hutchison & Bennett 4785*. Also Colombia (type of *Pleurothallis peniculus*).

**Barbosella cucullata** (Lindl.) Schltr., Fedde Repert. 15: 261. 1918. *Restrepia cucullata* Lindl., Ann. & Mag. Nat. Hist. 15: 108. 1845. *Pleurothallis rhynchantha* (Reichb. f. & Warsc.) L. Wms., Bot. Mus. Leaflet. Harvard Univ. 7: 188. 1939.

**Restrepiella hirsutissima** (C. Schweinf.) Garay & Dunsterv. Venez. Orch. Illustr. 4: 266. 1966. *Pleurothallis hirsutissima* C. Schweinf., Bot. Mus. Leaflet. Harvard Univ. 15: 94, t. 29. 1951.

**Restrepiella microptera** (Schltr.) Garay & Dunsterv. Venez. Orch. Illustr. 4: 266. 1966. *Pleurothallis microptera* Schltr. Fedde Repert. Beih. 7: 108. 1920.

Plant rather large, about 30 cm. tall. Stems caespitose, up to 17 cm. high, erect, almost entirely concealed by about 6 tubular, brown sheaths. Leaf erect, oblong to oblong-elliptic, subobtusate, nearly sessile, up to 12 cm. long and 2.3 cm. wide. Inflorescences 1 or 2, abbreviated, 1-flowered. Flower relatively large, glabrous. Dorsal sepal lanceolate, long-attenuate to an obtuse tip, cucullate, 1-1.2 cm. long. Lateral sepals very similar but narrower toward the base. Petals about half as long as the sepals, oblong-elliptic, acute. Lip oblong-ovate in outline, 3-lobed near the base, about 5 mm. long, cuneate at base; lateral lobes small, rounded-semiobovate; mid-lobe much larger, broadly obovate, abruptly acute or apiculate; disc with a pair of short fleshy calli between the lateral lobes. Column very small and slender.

Amazonas: Prov. of Chachapoyas, 2,350-2,400 m., on rocks in scrub forest, along Río Ventilla, 1-2 km. west of Molinopampa, flowers pale yellow, *Wurdack 1477*. Colombia (type of *Pleurothallis microptera*). The presence of four pollinia indicates its membership in the concept *Restrepiella*.

**Brachionidium phalangiferum** Garay, Canad. Journ. Bot. 34: 738, fig. 3, H-K. 1956.

Plant small, with a long-creeping rhizome or primary stem which is entirely concealed by tubular, scarious sheaths. Secondary stems short, up to 7 mm. long, covered by 2 imbricating, scarious, tubular sheaths. Leaf elliptic-obovate, acute, gradually contracted below into a narrow petiole, 2.3 cm. long, 6-8 mm. wide. Flower solitary, large for the plant, long-peduncled, with the sepals and petals wide-spreading, minutely cellular-ciliolate. Dorsal sepal broadly ovate, abruptly contracted into a long tail, 2.5-3.9 cm. long. Lateral sepal connate into a very similar lamina of which the tail is deeply bifid above. Petals obliquely ovate below, rather abruptly contracted into a similar long tail, nearly as long as the sepals. Lip relatively minute, transversely rhombic-ovate, apiculate at the broad apex, about 2 mm. long and 5 mm. wide below; disc with a large fleshy, 3-lobulate callus in the center.

Cuzco: Prov. of Paucartambo, Pillawata, Paso del Aguila, 2,800 m., prostrate in moss of humus in shady woods, *Vargas 16772*. Also Venezuela (type).

**Malaxis andicola** (Ridl.) O. Ktze., *Rev. Gen. Pl.* 2: 673. 1891.  
*Microstylis andicola* Ridl., *Journ. Linn. Soc. Bot.* 24: 330. 1888.  
*Microstylis termensis* Kränzl., *Fedde Repert.* 1: 91. 1905. *Malaxis termensis* (Kränzl.) C. Schweinf., *Bot. Mus. Leafl. Harvard Univ.* 10: 33. 1941.

**Malaxis andicola** (Ridl.) O. Ktze. var. **elata** (C. Schweinf.) C. Schweinf. comb. nov. *Malaxis termensis* (Kränzl.) C. Schweinf. var. **elata** C. Schweinf., *Bot. Mus. Leafl. Harvard Univ.* 16: 10. 1953.

*Malaxis termensis* (Kränzl.) C. Schweinf., *Bot. Mus. Leafl. Harvard Univ.* 10: 33. 1941. = **M. andicola** (Ridl.) O. Ktze., *Rev. Gen. Pl.* 2: 673. 1891.

*Diothonea nutans* (Lindl.) C. Schweinf., *Bot. Mus. Leafl. Harvard Univ.* 11: 179. 1944. = **Hemiscleria nutans** Lindl. *Fol. Orch. Hemiscleria* (1853) 1.

**Lanium subulatum** Rolfe, *Kew Bull.* (1896) 46; *Cogn.*, *Martius Fl. Bras.* 3, pt. 5: 27. 1898.

Plant small, epiphytic, about 13 cm. or less high. Pseudobulbs oblong-ovoid, several-jointed, bearing 2 to 3 separated leaves and an additional one at the base, up to 2.3 cm. long. Leaves linear-subulate, subterete, channelled, more or less, acute, fleshy, arcuate, up to 9.5 cm. long and 2.5 mm. wide. Inflorescence loosely paniculate and many-flowered (rarely racemose and few-flowered). Flowers very small, pale green, suffused with pink. Dorsal sepal elliptic-lanceolate, acute, about 5 mm. or less long. Lateral sepals similar, lightly oblique. Petals linear, acute, slightly shorter than the sepals. Lip round-ovate, acute or short-acuminate, concave, with the 3 central nerves thickened, about 3.5 mm. long and nearly as wide when expanded.

Amazonas: Prov. of Bagua, canyon of Río Marañon below Milagro, on the Mesones-Muro highway between Campomiento Santa Rosa (Km. 247) and Quebrada Amajo (Km. 250), about 400 m., *Hutchison 1533*. Between Quebrada Aramanga (Km. 262) and Punta Pomará (Km. 268), about 400 m., *Hutchison 1556*. Also Brazil (Minas Geraes) type.

**Epidendrum alpicola** Reichb. f., *Bonpl.* 2: 110. 1854.

Plant stout, about 25-60 cm. tall. Stem ancipitous, entirely concealed by tubular, leaf-bearing sheaths. Leaves (often deciduous through the lower portion of the stem) rather numerous, distichous, linear-lanceolate or narrowly oblong, subacute to obtuse and often bilobulate at the apex, sessile, 8-18 cm. long, up to 1.8 cm. wide. Inflorescence racemose, nodding above, subtended by 1 or 2 prominent, narrowly oblong, conduplicate, acute sheaths; raceme subdensely many-flowered, about 8 cm. long. Flowers small, thin in the dried specimen. Dorsal sepal narrowly elliptic-lanceolate, acuminate, about 7-12 mm. long and 2 mm. or

more wide. Lateral sepals similar but slightly larger, oblique. Petals linear, narrowed toward the base, much shorter than the sepals. Lip shorter than the sepals, with the claw entirely adnate to the column; lamina sharply 3-lobed, cordate at base, about 4.5 mm. or more long; lateral lobes narrow, transversely oblong, cordate at base and apex, slightly crenulate on the outer margin; mid-lobe porrect, rhombic-lanceolate, acuminate; disc bicallose at base, with 3 more or less distinct carinate lines in front. Column prominent, arcuate, dilated upward, nearly equaling the lamina of the lip.

Junín: Chanchamayo, *Steumpfle s.n.* Also Colombia and Venezuela (type).

*Epidendrum biflorum* Ruiz & Pav. Syst. Veg. Fl. Peruv. et Chil. 1: 247. 1798. = *E. peruvianum* Hawkes, Orquidea 18; no. 5: 172. 1956, not *E. biflorum* Forst. f., 1786.

*Epidendrum breviracemum* C. Schweinf., Bot. Mus. Leaflet. Harvard Univ. 15: 139, t. 41. 1952. The number of the type should be 35456, not 39456. In the opinion of Dr. L. A. Garay, this concept is synonymous with *Epidendrum jajense* Reichb. f., Bonpl. 2: 20. 1856.

*Epidendrum chioneum* Lindl., Bot. Reg. 31, Misc. 73, no. 36. 1845.

Plant stout, terrestrial, up to 7 dm. or more high, with thick roots. Stems simple or more usually branched with commonly ascending branches, entirely concealed by close, tubular leaf-sheaths, commonly leafless below. Leaves numerous, distichous, ovate-lanceolate to oblong-lanceolate (rarely linear-lanceolate), obtuse to acute and apiculate, sessile and clasping at base, more or less ascending, up to 8.4 cm. long and 1.8 cm. wide. Inflorescences short and usually nodding, densely many-flowered, almost subcapitate, with a short bracted peduncle, about 7 cm. or less long including the flowers. Flowers small, white, green, greenish yellow or yellow, rather fleshy. Dorsal sepal elliptic-obovate to oblong-obovate, obtuse to acute, up to 8.7 mm. long. Lateral sepals a little larger, oblique, sharply acute. Petals much narrower, spatulate-oblong, acute (rarely) to obtuse or broadly rounded at the apex, slightly shorter than the dorsal sepal. Lip about as long as the sepals, with the claw entirely adnate to the short stout column; lamina more or less 3-lobed, often deeply so, bicallose at base, up to 7.5 mm. long and 11 mm. wide across the lateral lobes when expanded, cordate at base; lateral lobes (if distinct) obliquely round-ovate; mid-lobe often larger, subquadrate or flabellate-subquadrate, more or less retuse and apiculate.

Amazonas: Prov. of Bongará, Jalca zone, along Yambrasbamba-Pomacocha trail, between Yanayacu and Pomacocha, 2,300-2,400 m. terrestrial, flowers pale dull yellow with pale green column, *Wurdack 1074*. Also Colombia (type) and Ecuador.

*Epidendrum cochlidium* Lindl., Ann. Nat. Hist. 4: 382. 1840. = *E. secundum* Jacq. Enum. Pl. Carib. 29. 1760.

**Epidendrum compressum** Griesb. Fl. Br. W. Ind. Is. 617. 1864. *Epidendrum yatapuense* Barb.-Rodr. Vellozia 1, ed. 2: 123. 1891.

**Epidendrum coronatum** Ruiz & Pav. Syst. Veg. Fl. Peruv. et Chil. 1: 242. 1798. *E. moyobambae* Kränzl., Fedde Repert. 1: 185. 1905.

*Epidendrum corymbosum* Ruiz & Pav. Syst. Veg. Fl. Peruv. et Chil. 1: 246. 1798. = **E. secundum** Jacq. Enum. Pl. Carib. 29. 1760.

*Epidendrum crassilabium* Poepp. & Endl. Nov. Gen. ac Sp. 2: 1, t. 102. 1837-38. = **E. Vespa** Vell. Fl. Flum. Ic. 9: t. 27. 1827.

**Epidendrum cyperifolium** C. Schweinf., Bot. Mus. Leaflet. Harvard Univ. 16: 10. 1953.

An examination of the Ruiz & Pavón material of *Bletia ensiformis*, which was cited as a questionable synonym, shows that it surely exemplifies *E. cyperifolium*. However, the existence of *E. ensiforme* Vell. (1827) renders a change unnecessary.

*Epidendrum dichotomum* Presl, Rel. Haenk. Liv. 1, 2: 101. 1827. = **E. secundum** Jacq. Enum. Pl. Carib. 29. 1760.

*Epidendrum euspathum* Kränzl. Fedde Repert. 1: 182. 1905. = **E. Lehmannii** Reichb. f., Otia Bot. Hamb. 1: 11. 1878.

### **Epidendrum excelsum** C. Schweinfurth sp. nov.

Herba mediocris, cum rhizomate repenti et radicibus pluribus crassis albidis glabris. Caules breves, plusminusve approximati, in sicco striato-rugosi, vaginis tribus quarum superiores foliifera celati. Folia anguste oblonga vel lineari-lanceolata, acuta vel acuminata, ad basim sessilem leviter angustata. Inflorescentia solitaria, erecta, superne laxe multiflora, pedunculo saepe folium unicum gerenti. Florum bractee conspicuae, anguste triangulari-lanceolatae, acuminatae, late patentes. Flores parvi, subcarnosi, aurei. Sepalum dorsale oblongo-ovatum, acutum, concavum. Sepala lateralia oblique elliptico-ovata, acuta, dorso conspicue carinata. Petala oblique oblongo-vel lineari-oblancoolata, truncato-obtusata. Labellum columnae valde adnatum; lamina convexa, simplex vel leviter subtrilobata, apice retusa, transverse cordato-ovata, margine irregulariter eroso-denticulata; discus basi bicallosus, carinis carnis approximatis quinque maxima pro parte obtectus. Columna brevis, crassa.

Plant medium-sized, with a branching woody rhizome. Roots few, large, fibrous, whitish, glabrous. Stems short, more or less approximate, numerous, striate-rugose in the dried specimen, apparently fleshy-thickened in life, 3-6 cm. high, concealed by about three sheaths of which the lower ones are loose, scarios and marcescent and the upper one or two leaf-bearing. Leaves narrowly oblong to linear-lanceolate, acute or acuminate, slightly narrowed to a sessile base, up to 8 cm. long and 1.05 cm. wide. Inflorescence solitary, erect, loosely many-flowered

and often gently arcuate above (sometimes with a single leaf in the lower portion of the peduncle) up to 22 cm. long; raceme about 17 cm. or less long. Floral bracts narrow but conspicuous, narrowly triangular-lanceolate, acuminate to an acute tip, spreading, up to 9 mm. long, with a concave base. Flowers small, yellow or grayish yellow, rather fleshy. Dorsal sepal oblong-ovate or elliptic-ovate, 3-nerved, about 5.1–6.7 mm. long and 3–4 mm. wide. Lateral sepals obliquely ovate or elliptic-ovate, acute, prominently carinate without, 1- to 3-nerved, about 6.9–7.8 mm. long and 3.5–3.7 mm. wide. Petals obliquely oblong-oblancoolate or linear-oblancoolate, truncate-obtuse, 1-nerved, with irregular upper margins, about 4.9–6.1 mm. long and 1.5–1.8 mm. wide above. Lip adnate to the column to its apex; lamina convex in natural position, simple or indistinctly subtrilobed, retuse, with the margins (except at the base) erose-denticulate, transversely cordate-ovate, 5.3–5.5 mm. long in the middle and 8 mm. wide when expanded; disc bicallose at the base, then mostly covered by 5–7 fleshy approximate ridges. Column short and stout, dilated upward, excised in the middle of the apex, about 3.4–4.5 mm. high at the back.

*Epidendrum excelsum* suggests *E. rupestre* Lindl. in vegetative appearance, but it has an almost simple lip. It differs from *E. albo-marginatum* Reichb. f. in lacking stipitate pseudobulbs, in having a straight (not fractiflex) rachis of the raceme and in having several fleshy ridges on the lip. The specific epithet is in allusion to the high altitude.

La Libertad: Prov. of Huamachuco, between Yanazara and Huaquil (on road to Marañon), at 3,750 m. altitude, epiphyte on "quishuar" (*Buddleia* sp.), "flores amarillentas," June 24, 1958, López & Sagástegui 2757 (type in Herb. Ames No. 69112). La Libertad Prov. of Pataz, Tingo (La Sabana-Huaylillas), at 3,100 m. altitude, on edge of road, "flores amarillo-parduzcas," May 23, 1961, López & Sagástegui 3542.

*Epidendrum Feddeanum* Kränzl., Fedde Repert. 1: 188. 1905. = *E. Vespa* Vell. Fl. Flum. Ic. 9: t. 27. 1827.

### ***Epidendrum forcipatum* C. Schweinfurth sp. nov.**

Herba alta, pulchra ut videtur. Caules caespitosi, septem in typo, foliorum vaginis imbricantibus omnino celati. Folia erecto-patentia, in sicco conduplicata et leviter recurva ut videtur, expansa ovalia vel elliptico-ovata, apice rotundata, basi cordato-amplexentia. Inflorescentia elata; pedunculus elongatus, vaginis numerosis, longe tubulatis, maxima pro parte obtectus. Racemus laxe multiflorus, pendulus. Florum bractee inconspicuae, angustae. Flores satis parvi, segmentis patentibus. Sepalum dorsale oblongo-oblancoelatum, obtusum vel acutum, crassius. Sepala lateralia oblique oblongo-obovata, acuta, quam sepalum dorsale paulo latiora. Petala filiformia, apice rotundata, membranacea. Labellum columnae omnino adnatum; lamina profunde trilobata, basi cordata, bicallosa; lobi laterales oblique ovals, in situ naturali reflexi; lobus intermedius recurvus,

a parte inferiore ligulato-subquadrata in lobulos binos triangulari-oblongo terminans. Columna apice antice dilatata.

Plant tall, caespitose, up to about 21.5 dm. in height according to collector's notes, remarkably beautiful. Stems up to 6.5 dm. high, entirely concealed by the sheaths of the leaves. Leaves numerous, distichous, imbricating, erect-spreading, noted as purplish, strongly conduplicate and gently recurved in the dried specimen, the blades being oval to broadly elliptic-ovate, rounded at the apex, cordate-clasping at the base, with strongly crispate margins, up to 9 cm. long and 6.4 cm. wide, purplish green, rigid. Inflorescence up to 15 dm. in height; peduncle elongate, mostly concealed by numerous close, tubular, more or less maculate sheaths with an oblong-triangular, acute, free apex, the lowermost sheath sometimes loose and enlarged. Flower clusters racemose (but sometimes with a short incipient branch at the base), nodding, up to 16 cm. long, loosely many-flowered. Floral bracts inconspicuous, membranaceous, narrowly triangular-lanceolate, acuminate, up to 1.2 cm. long at the base of the raceme. Pedicellate ovary slender, gently reflexed, up to 1.4 cm. long. Flowers rather small, with widely spreading or reflexed segments. Sepals rather fleshy, ochraceous-tawny. Dorsal sepal oblong-oblancheolate, obtuse or acute, indistinctly 5-nerved, 10–10.5 mm. long, 3–3.5 mm. wide. Lateral sepals obliquely oblong-obovate, acute, 6-nerved, 10–10.3 mm. long, up to 4.5 mm. wide. Petals filiform, slightly broader above, rounded at the apex, 1-nerved, membranaceous. Lip with claw entirely adnate to the column, straw-yellow; lamina sharply 3-lobed, cordate at the base, 7.5–8 mm. long from the center of the base to the tip of an apical lobule of the mid-lobe, rather fleshy, with a pair of complanate calli at the base; lateral lobes obliquely oval or rounded-dolabriform with irregular margins, reflexed in natural position; mid-lobe from a ligulate-subquadrate base terminating in a pair of triangular-oblong, obtuse to acute, slightly spreading lobules, lightly and bluntly 3-ribbed. Column about 7 mm. high at the back, re-tuse at the apex, abruptly dilated in front above.

Habitat not cited, probably Peru, *Woytkowski s.n.* Univ. Calif. Botanical Garden at Berkeley, 52, 1853–1. Type in Herb. Ames No. 69508.

This species has the general habit and flowers recalling the widespread and variable *Epidendrum paniculatum* Ruiz & Pavón, and especially *E. hondurensis* Ames, but it is widely dissimilar in most respects.

*Epidendrum frigidum* Linden ex Lindl. var. *stenophyton* (Schltr.) C. Schweinf., Bot. Mus. Leaflet. Harvard Univ. 11: 227. 1944. = **E. frigidum** Linden ex Lindl., Bot. Reg. 31, Misc. 76, no. 48. 1845.  
*Epidendrum Giroudianum* Reichb. f., Bonpl. 4: 327. 1856. = **E. secundum** Jacq. Enum. Pl. Carib. 29. 1760.

**Epidendrum Goodspeedianum** Hawkes, Orquidea 18: 170. 1956. *E. muricatum* Reichb. f., Bonpl. 4: 327. 1856, not Poir. 1810.

*Epidendrum gracilicaule* Reichb. f. & Warsc., Bonpl. 2: 111. 1854. = **E. secundum** Jacq. Enum. Pl. Carib. 29. 1760.

*Epidendrum grandiflorum* Lindl., Hook. Journ. Bot. 3: 86. 1841. = **E. Sanderi** Hawkes, Orquidea 18: 178. 1956, not *E. grandiflorum* Poir. 1810, nor Kunth 1822.

*Epidendrum Herreranum* C. Schweinf., Rev. Acad. Colomb. Ciénc. Exact. Físic. y Natur. 5: 350. 1943. = **E. monzonense** Kränzl., Fedde Repert. 1: 88. 1905.

**Epidendrum ibaguense** HBK. var. **confluens** (Lindl.) C. Schweinf., Bot. Mus. Leaflet. Harvard Univ. 11: 232. 1944. This variety is sometimes considered as referable to the species on the basis of intergrading forms.

*Epidendrum incisum* Reichb. f. & Warsc., Bonpl. 2: 112. 1854. = **E. secundum** Jacq. Enum. Pl. Carib. 29. 1760

**Epidendrum lacustre** Lindl. Fol. Orch. Epidendrum 50, no. 157. 1853.

Plant large and stout, up to 12 dm. tall (according to the collectors' notes). Stem entirely concealed by loose, mostly leaf-bearing sheaths. Leaves several, distichous, chiefly on the upper part of the stem, elliptic to oval, obtuse (mostly broadly so), clasping at the sessile base, chartaceous, up to 21 cm. long and 7.4 cm. wide. Inflorescence short, up to 12 (rarely 17) cm. long, concealed at base by 1 or 2 conspicuous conduplicate spathes which are up to 8 cm. long. Flowers about 7 or less, very large, white with spreading segments, disposed in a subumbellate cluster near the apex of the peduncle. Pedicels up to 12 cm. long. Dorsal sepal narrowly lanceolate, acuminate, up to 4.8 cm. long, 3-4 mm. wide. Lateral sepals very similar, oblique. Petals similar to the lateral sepals but slightly smaller. Lip a little shorter than the other segments, with the claw entirely adnate to the column; lamina ovate, entire to obscurely 3-lobed, long-acuminate, broadly rounded to subcordate at base, acutely bicallose at base with a thickened or elevated central line, up to about 4 cm. long. Column gradually dilated upward, up to 2.5 cm. long.

Cuzco: Prov. of Paucartambo, Tanamayo, 2,000 m., on moist slope, *Vargas 11651*. Also Venezuela (type) and Nicaragua.

**Epidendrum lanioides** Schltr., Fedde Repert. 12: 489. 1913.

Plant epiphytic, up to 14.5 cm. high, with a creeping, many-jointed rhizome. Stems slender to narrowly cylindrical or fusiform (fide Schltr.), up to 4.5 cm. long, bifoliate at the apex (with one leaf often much reduced), concealed by about 2 membranaceous, marcescent sheaths. Leaves linear, obtuse, up to 8 cm. long and 8 mm. wide. Racemes slender, laxly several-flowered, erect, almost equaling the leaves. Flowers small, yellowish, with spreading segments. Dorsal sepal linear-lanceolate, acuminate, up to 5.9 mm. long, nearly 1 mm. wide. Lateral sepals very obliquely elliptic-lanceolate, about as long as the dorsal sepal and twice as wide. Petals filiform, slightly shorter than the sepals. Lip nearly as long as the sepals, claw entirely adnate to the column; lamina sharply 3-lobed, about 3 mm. long,



with a deeply 3-lobed callus at base; lateral lobes aliform, acuminate, cordate at base; mid-lobe subequal, narrowly triangular, acuminate, porrect. Column relatively large, dilated upward, about 3.2 mm. long.

Cuzco: Machu-Picchu, on rocks of mountain slope just below ruins, *Correll & Smith P. 275*. Bolivia (type).

**Epidendrum Lechleri** Reichb. f., *Linnaea* 41: 38. 1876.

An examination of the type shows that the lip is simple and the species is represented by the taxon described as *E. nephroglossum* Schltr. (*Fedde Repert. Beih.* 9: 89. 1921), which is therefore a synonym.

Cuzco: Prov. of Quispicanchis, Marcapata, 3,200 m., on rocks, *Vargas 16565*.—Huancavelica: Prov. of Tayacaja, district of Huachocolpa, above Marcavalle, 3,000 m., flowers yellow, *Tovar 4770*. Also Bolivia, as *E. Evelynae* Reichb. f.

**Epidendrum Lehmannii** Reichb. f., *Otia Bot. Hamb.* 1: 11. 1878. *E. euspathum* Kränzl., *Fedde Repert.* 1: 182. 1905.

**Epidendrum leucochilum** Kl., *Allgem. Gartenz.* 11: 145. 1843.

Plant large, robust, up to 8 dm. tall. Stems stout, entirely concealed by mostly leaf-bearing sheaths. Leaves numerous, distichous, spreading, lanceolate-elliptic to elliptic (rarely obovate-elliptic), acute to obtuse, sessile at the more or less narrowed, clasping base, up to 30 cm. long and nearly 10 cm. wide, chartaceous. Inflorescence subequaling the leaves; peduncle commonly 12 cm. or less long, mostly or wholly concealed by a conspicuous conduplicate spathe; raceme erect or arcuate, laxly 5- to 15-flowered. Flowers large, long-pedicelled (with pedicels up to 11 cm. long), green or yellow often with a white lip and column. Dorsal sepal linear-lanceolate, acuminate, 3.2-4 cm. long, about 7 mm. wide. Lateral sepals obliquely and narrowly lanceolate, about as long as the dorsal sepal but somewhat broader. Petals elliptic-linear, about as long as the sepals but narrower. Lip with the claw entirely adnate to the column, about 2.5 cm. long; lamina deeply 3-lobed, up to 2 cm. wide across the lateral lobes, bicallose at base with a central ridge; lateral lobes variable, round-oval to round-flabellate with margins entire; mid-lobe more or less narrowly lanceolate, acute. Column large, arcuate, much dilated above, about 2 cm. long.

Amazonas: Prov. of Bongará, Pomacochas road, Km. 318½ (*E. of Olmos*) between Pomacochas and Río Utcubamba, in deep forested gorge, 1,810 m., *Hutchison & Wright 3933*. Also Venezuela (type) and Colombia.

**Epidendrum lineare** Ruíz & Pav. *Syst. Veg. Fl. Peruv. et Chil.* 1: 249. 1798. *E. luteo-roseum* A. Rich. & Gal., *Comptes Rend. Acad. Sci. Par.* 18: 512. 1844, nomen; *Ann. Sci. Nat. ser.* 3: 3: 19. 1845.

Plant epiphytic, with a creeping rhizome, about 6 dm. or less tall. Pseudobulbs more or less approximate, elongate-ovoid (often indistinct in the dried specimen), up to 8 cm. long, entirely concealed by several imbricating, membranaceous sheaths, bearing 3 to 5 leaves near the summit. Leaves approximate, linear, acute, sessile at the clasping base, up to 28 cm. long and 9 mm. wide. Inflorescence more or less surpassing the leaves, up to 35 cm. tall, loosely paniculate with numerous ascending, few-flowered branches. Flowers small, long-pedicelled, green sometimes suffused with brown or rose-yellow. Dorsal sepal oblanceolate, acute or apiculate, about 7.5–12 mm. long and 2.3 mm. wide. Lateral sepals similar but slightly smaller, oblique. Petals linear-spatulate, acute or obtuse, 12 mm. or less long. Lip adnate to the column up to near the apex; lamina simple, oblong-obovate, lightly retuse at the broad apex, about 6–12 mm. long and 4–5 mm. wide above, bicallose at base, traversed by 5 longitudinal, wrinkled keels.

Huánuco: Chinchao, Muña & Huassa-huassi, in open woods, on trees and rocks, *Pavón s.n.* (type).—Junín: Chanchamayo, *Moore C-210*. Also Mexico (type of *E. luteo-roseum*), Guatemala, Honduras and Venezuela.

*Epidendrum maculatum* Ruiz & Pav. Syst. Veg. Fl. Peruv. et Chil. 1: 243 1798. = *E. Teuscherianum* Hawkes, Orquidea 18: 173 1956, not *E. maculatum* Aubl., 1775.

### ***Epidendrum Moritzii* Reichb. f., Linnaea 22: 837. 1849.**

Plant medium-sized, epiphytic, with a branched rhizome. Stems approximate, fleshy-thickened, altogether concealed by several imbricating, tubular, marcescent sheaths, up to 10 cm. long, 1- to rarely 3-foliate near the apex. Leaves narrowly oblong to linear, obtuse to subacute, sessile at the slightly narrowed clasping base, 6–14 cm. long, rarely up to 1.5 cm. wide. Inflorescence much surpassing the leaves, up to 40 cm. long, arcuate or pendent, racemose and densely many-flowered above, the peduncle more or less concealed by 1 or 2 long, narrow, compressed sheaths. Flowers membranaceous, yellow-green or yellowish cream-color, sometimes with a pink flush. Dorsal sepal linear-lanceolate, acute, 11–15 mm. long, about 2.5 mm. wide. Lateral sepals very obliquely elliptic-lanceolate, acuminate, about as long as the dorsal sepal but wider. Petals filiform to narrowly linear-oblanceolate, about as long as the sepals. Lip a little shorter than the other segments, the claw entirely adnate to the column; lamina deeply 3-lobed, ovate in outline, cordate at base; lateral lobes semiovate or aliform, acute or obtuse, more or less denticulate on the margin; mid-lobe ligulate to oblong-spatulate, acute; disc with 3 calli at base. Column stout, slightly dilated above.

Amazonas: Prov. of Chachapoyas, Cerros Calla Calla, 19 km. above Leimebamba, on road to Balsas, 3,100 m., spikes about 2.5 cm. in diameter, *Hutchison & Wright 4856*. Also Venezuela (type) and Colombia.

*Epidendrum moyobambae* Kränzl., Fedde Repert. 1: 185. 1905. = *E. coronatum* Ruiz & Pav. Syst. Veg. Fl. Peruv. et Chil. 1: 242. 1798.

*Epidendrum muricatum* Reichb. f., Bonpl. 4: 327. 1856. = **E. Goodspeedianum** Hawkes, Orquidea 18: 170. 1956, not *E. muricatum* Poir. 1810.

*Epidendrum nephroglossum* Schltr. Fedde Repert. Beih. 9: 89. 1921. = **E. Lechleri** Reichb. f., Linnaea 41: 38. 1876.

**Epidendrum odontospathum** Reichb. f., Xen. Orch. 3: 23. 1878. *E. refractoides* C. Schweinf., Bot. Mus. Leaflet. Harvard Univ. 11: 114. fig., 1943.

**Epidendrum Peperomia** Reichb. f., Bonpl. 2: 20. 1854. *E. Porpax* Reichb. f., Bonpl. 3: 220. 1855, not 1865.

**Epidendrum peruvianum** Hawkes, Orquidea 18: 172. 1956. *E. biflorum* Ruiz & Pav. Syst. Veg. Fl. Peruv. et Chil. 1: 247. 1798, not Forst. f., 1786.

**Epidendrum Philippii** Reichb. f., Linnaea 22: 840. 1849. *E. refractoides* C. Schweinf., var. *humile* C. Schweinf., Bot. Mus. Leaflet. Harvard Univ. 16: 13. 1953.

*Epidendrum Porpax* Reichb. f., Bonpl. 3: 220. 1855, not 1865. = **E. Peperomia** Reichb. f., Bonpl. 2: 20. 1854.

**Epidendrum porquerense** Lehm. & Kränzl., Engler Bot. Jahrb. 26: 461. 1899.

Plant small, epiphytic, with a creeping rhizome. Stems more or less approximate, linear-cylindric, entirely concealed by close, imbricating, membranaceous sheaths, linear-foliate at the apex, 3-7.5 cm. high. Leaf very narrowly linear, channelled, acute, up to 16.2 cm. long and (rarely) 3 mm. wide. Raceme short, loosely few-flowered, much shorter than the leaf, about 5 cm. or less long. Flowers large for the plant, greenish-yellow or cream-yellow. Dorsal sepal narrowly lanceolate, long-acuminate, up to 1.4 cm. long and 1.5 mm. wide. Lateral sepals obliquely lanceolate, a little longer and wider than the dorsal sepal. Petals narrowly linear, distinctly shorter than the sepals. Lip with claw entirely adnate to the column, shorter than the sepals; lamina deeply 3-lobed, cordate below, bicallose at base, about 7 mm. or less long; lateral lobes rounded-dolabriform; mid-lobe narrowly triangular, long-acuminate.

Huánuco: Tingo María, *Moore T. 120*. Also Colombia (type).

*Epidendrum reflexilobum* C. Schweinf., Bot. Mus. Leaflet. Harvard Univ. 11: 112, fig. 1943. = **E. tricarinatum** Rolfe, Kew Bull. (1917) 81.

*Epidendrum refractoides* C. Schweinf., Bot. Mus. Leaflet. Harvard Univ. 11: 114, fig., 1943. = *E. odontospathum* Reichb. f. Xen. Orch. 3: 23. 1878. Also Bolivia (type of *E. odontospathum*).

*Epidendrum refractoides* C. Schweinf. var. *humile* C. Schweinf., Bot. Mus. Leaflet. Harvard Univ. 16: 13. 1953. = *E. Philippii* Reichb. f., Linnaea 22: 840. 1849.

*Epidendrum renilabium* Schltr. Fedde Repert. Beih. 8: 84. 1921; Mansf. Fedde Repert. Beih. 57: t. 92, nr. 361. 1929.

Plant very stout, up to 2 m. tall. Stem thick, often branching above, distichously many-leaved, entirely concealed by loose leaf-sheaths. Leaves oblong to elliptic-oblong, rounded and often retuse at the apex, sessile at the clasping base, up to 11 cm. long and 3.6 cm. wide (commonly much smaller). Raceme terminal, short, densely many-flowered, 4-10 cm. long, nodding in course of development, with a very short or wanting peduncle. Flowers medium-sized, rather fleshy, pale yellow-green. Dorsal sepal elliptic, acute, about 12 mm. long and 7 mm. wide. Lateral sepals obliquely ovate-elliptic or elliptic-lanceolate, slightly larger than the dorsal sepal. Petals elliptic-obovate, broadly rounded at the apex, a little shorter than the dorsal sepal but about as wide. Lip with claw entirely adnate to the column below; lamina simple, broadly reniform, cordate at base, emarginate to bilobed at the apex, about 13 mm. long on each side and 18 mm. wide; disc with a pair of conspicuous carinate calli below.

Piura: Prov. of Huancabamba, 18 km. above Canchaque, on road to Huancabamba, 2,150 m., *Hutchison & Wright 6560*; Same locality, 22 km. above Canchaque, 2,300 m., *Hutchison & Wright 6571*. Also Ecuador (type).

*Epidendrum Sanderi* Hawkes, Orquidea 18: 178. 1956. *E. grandiflorum* Lindl., Hook. Journ. Bot. 3: 86. 1841, not Poir. 1810, nor Kunth 1822.

*Epidendrum satyrioides* Sw. Prodr. Veg. Ind. Occ. 123. 1788. = *Ionopsis satyrioides* (Sw.) Reichb. f., Walp. Ann. 6: 683. 1863.

*Epidendrum secundum* Jacq. Enum. Pl. Carib. 29. 1760. *E. corymbosum* Ruiz & Pav. Syst. Veg. Fl. Peruv. et Chil. 1: 246. 1798. *E. dichotomum* Presl Rel. Haenk. Liv. 2: 101. 1827. *E. xanthinum* Lindl., Bot. Reg. 30, Misc. 18, no. 11. 1844. *E. cochlidium* Lindl., Ann. Nat. Hist. 4: 382. 1840. *E. gracilicaule* Reichb. f. & Warsc., Bonpl. 2: 111. 1854. *E. xytriphorum* Reichb. f. & Warsc., Bonpl. 2: 112. 1854. *E. incisum* Reichb. f. & Warsc. Bonpl. 2: 112. 1854. *E. Giroudianum* Reichb. f., Bonpl. 4: 327. 1856. Other synonyms cited under *E. dichotomum* Presl.

**Epidendrum Sophronitis** Linden & Reichb. f., Gard. Chron. (1867) 655; Reichb. f., Xen. Orch. 2: 160, t. 167, fig. I, 1. 1870.

Plant dwarf, with a stout creeping rhizome. Pseudobulbs small, ovoid, about 1.3 cm. long, bearing 1-3 leaves. Leaves elliptic-lanceolate, oblong or oval, acute to broadly obtuse and rounded at the apex, about 4.5-7.6 cm. long, up to 3.3 cm. wide, glaucous green above, purple beneath, very fleshy. Inflorescence an abbreviated, 1- to 3-flowered raceme. Flowers very large for the plant, with spreading segments. Sepals and petals white, pale green or greenish yellow, streaked with purple or maroon, lip green, heavily marked with purple. Dorsal sepal ovate-lanceolate, acuminate, recurved, 2-3.5 cm. long and 1 cm. wide. Lateral sepals obliquely lanceolate-triangular or ovate-lanceolate, long-acuminate, about as long as the dorsal sepal but commonly broader. Petals lanceolate or ovate-lanceolate, markedly smaller than the sepals. Lip with claw adnate to the short stout column; lamina broadly ovate, rounded at base, long narrowed or abruptly contracted above to a triangular, acuminate apex, about 2-2.5 cm. long and 1-2 cm. wide.

Amazonas: Prov. of Bongara, 5 km. north of north end of Lake Pomacocha, on road to Rioja, 2,000 m., *Hutchison & Wright 6810*.—Junín: Chanchamayo, 1,380 m., flowers cream-color with close deep wine spots, *Moore C-60*. Oxapampa, *Steumplfle s.n.* Also Ecuador (type).

**Epidendrum spectatissimum** Reichb. f., Bonpl. 3: 68. 1855.

Plant very large, up to 12 dm. tall, terrestrial. Stems stout, distichously many-leaved, entirely concealed by leaf-sheaths which waste into fibres below. Leaves elliptic-oblong to elliptic, acute to obtuse, clasping at the sessile base, up to 27.5 cm. long and 8.6 cm. wide in specimens seen. Inflorescence subequaling the upper leaves, a nodding, densely many-flowered raceme, the peduncle concealed by a cluster of several large, conduplicate, imbricating spathes. Flowers large, long-pedicelled, the pedicellate ovary up to 13 cm. long. Sepals and petals white soon turning to pale lemon-yellow or dull cream-yellow with white lip and column. Sepals spreading, linear-lanceolate, acuminate, about 4-5 cm. long and 4 mm. wide. Petals elliptic-linear, a little smaller than the sepals. Lip with claw entirely adnate to the column; lamina deeply 3-lobed, bicallose at base, 2-3 cm. long; lateral lobes obliquely rounded-dolabriform; mid-lobe narrowly lanceolate, acuminate. Column gradually much dilated above, up to 2.4 cm. long.

Amazonas: Prov. of Chachapoyas, Cerros Calla Calla, 42 km. below summit on west side, above Balsas, about Km. 360½, terrestrial on steep, exposed, rocky slopes in xerophytic zone, 1,900 m., *Hutchison & Wright 7008*. Also Colombia (type) and Ecuador.

**Epidendrum stenopetalum** Hook., Bot. Mag. 62: t. 3410. 1835.

Plant epiphytic, caespitose. Stem stout, flexuous, slightly tapering at both ends, distichously several- (up to 11-) leaved above the base, entirely concealed by close tubular sheaths, longitudinally grooved in age, up to 40 cm. long. Leaves linear or lanceolate-linear, abruptly obtuse and minutely bilobed at the apex, ses-

sile with a clasping base, up to 12.8 cm. long and 1 cm. wide. Inflorescences 1 or more, abbreviated, few-flowered, racemose. Flowers medium-sized, lilac to pink or rose-purple. Dorsal sepal lanceolate or elliptic-lanceolate, acute or acuminate, up to 15 mm. long and 4 mm. wide. Lateral sepals ovate-lanceolate, about as long as the dorsal sepal but somewhat broader. Petals elliptic, acute, slightly longer and noticeably broader than the sepals. Lip broadly obovate, free from the column, retuse and sometimes apiculate, cuneate below with a small white callus, up to 19 mm. long and 13 mm. wide. Column short, with a pair of erect triangular wings at the apex.

Amazonas: Prov. of Bagua, between Campomiento Santa Rosa (Km. 247) and Quebrada Amajao (Km. 250), canyon of Río Marañón, below Milagro on the Mesones-Muro Highway, about 400 m., *Hutchison 1542*. Also Mexico and Central America, the West Indies (Jamaica, type) and South America to Brazil.

*Epidendrum subliberum* C. Schweinf., Bot. Mus. Leaflet. Harvard Univ. 15: 144, t. 44. 1952. = *Scaphyglottis sublibera* (C. Schweinf.) Dressler, Taxon 13: 247. 1964.

### ***Epidendrum sulcatum* Ames Orch. 7: 99. 1922**

Plant large, sprawling, epiphytic. Stems loosely branching with slender, suberect branches, entirely concealed by close tubular leaf-sheaths. Leaves numerous, loosely distichous, oblong-linear, acute, clasping at the sessile base, up to 9 cm. long and 7 mm. wide, mostly deciduous in the lower part of the stem and branches. Inflorescence solitary, nodding or arcuate, much surpassing the leaves; peduncle up to 13 cm. long, clasped below by a close, narrow, tubular spathe; raceme many-flowered, up to 15 cm. long. Flowers medium-sized, greenish yellow or pale green often tinged with lilac. Dorsal sepal linear-lanceolate, acuminate, about 13 mm. long and 3 mm. wide. Lateral sepals obliquely elliptic-lanceolate, long-acuminate, slightly longer than the dorsal sepal and conspicuously broader. Petals linear, acute, slightly broader above, shorter than the sepals. Lip somewhat shorter than the sepals, with the claw entirely adnate to the column; lamina deeply 3-lobed, cordate at base, about 6.4 mm. long in the middle, bicallose at base; lateral lobes semiorbicular-dolabriform, with irregularly denticulate margins, mid-lobe ovate-subquadrate to ligulate, abruptly triangular-acute. Column rather long, dilated above, bisulcate on the back, about 7 mm. long at the back.

Amazonas: Prov. of Chachapoyas, Cerros Calla Calla, 15 km. above Leimebamba, on road to Balsas, 2,950 m., *Hutchison & Bennett 4680*. Also Colombia (type).

***Epidendrum Teuscherianum* Hawkes, Orquidea 18: 173. 1956.**  
*E. maculatum* Ruiz & Pav. Syst. Veg. Fl. Peruv. et Chil. 1: 243: 1798 not Aubl., 1775.

***Epidendrum tipuloideum* Lindl. Fol. Orch. Epidendrum 32, no. 98. 1853.**

Plant small, epiphytic, variable, 17 cm. or less tall. Stems caespitose on an abbreviated rhizome, slenderly clavate, 2-jointed, invested by close scariosus sheaths, up to 8 cm. high, 1- or 2-leaved near the apex. Leaves linear (rarely oblong- or elliptic-linear), acute, sessile at the clasping base, up to 20 cm. long and 1.8 cm. wide (usually much smaller). Inflorescence a short, few-flowered, lax raceme, the rachis up to 6 cm. long. Flowers small, pale green to yellow. Dorsal sepal oblong-elliptic to narrowly oblanceolate or linear-lanceolate, acute, 9.3–12 mm. long, 2–3.8 mm. wide. Lateral sepals obliquely ovate-lanceolate or elliptic-lanceolate, acuminate, a little longer and broader than the dorsal sepal. Petals linear, elliptic-linear or linear-ob lanceolate, acute, shorter than the sepals. Lip shorter than the sepals, with the claw entirely adnate to the column; lamina deeply 3-lobed, cordate at base, bicallose below, 5–6 mm. long, 3–6 mm. wide across the lateral lobes; lateral lobes semiorbicular-dolabriform, with the margins more or less irregularly erose; mid-lobe subequal to the lateral lobes or larger, narrowly triangular to subquadrate, acute and apiculate or shortly acuminate. Column short, dilated upward, up to 6.4 mm. long.

Cuzco: Prov. of Quispicanchis, before Ttio Marcapata Valley, 1,850 m., on rocks, *Vargas 17118* (Plant small throughout).—Huánuco, Prov. of Huánuco, Capamento Boza, between Pumahuassi and Divisoria, about 1,000 m., *Asplund 13239*. Also Venezuela (type) and Trinidad.

***Epidendrum tricarinatum*** Rolfe, Kew Bull. (1917) 81. *E. reflexilobum* C. Schweinf. Bot. Mus. Leaflet. Harvard Univ. 11: 112, fig., 1943.

***Epidendrum Vespa*** Vell. Fl. Flum. Ic. 9: t. 27. 1827. *E. crassilabium* Poepp. & Endl. Nov. Gen. ac Sp. 2: I, t. 102. 1837–38. *E. Feddeanum* Kränzl., Fedde Repert. 1:188. 1905. Other synonyms cited under *E. crassilabium* Poepp. & Endl.

*Epidendrum xanthinum* Lindl. Bot. Reg. 30, Misc. 18, no. 11. 1844. = ***E. secundum*** Jacq. Enum. Pl. Carib. 29. 1760.

*Epidendrum xytriphorum* Reichb. f. & Warsc., Bonpl. 2: 112. 1854. = ***E. secundum*** Jacq. Enum. Pl. Carib. 29. 1760.

*Epidendrum yatapuense* Barb.-Rodr. Vellozia 1, ed. 2: 123. 1891. = ***E. compressum*** Griseb. Fl. Br. W. Ind. Is. 617. 1864.

***Epidendrum yauaperyense*** Barb. Rodr., Vellozia 1, ed. 2 (1891) 122; Cogn., Martius Fl. Bras. 3, pt. 5, 46, t. 10, fig. 1 (1898).

Plant medium-sized, with an abbreviated rhizome. Pseudobulbs congested, oblong-conic, 2–15 cm. high, bifoliate at the apex. Leaves linear, acute, about 4–7 dm. long, 1–5 cm. wide. Inflorescence about equaling or slightly surpassing the leaves, loosely paniculate with few, laxly several-flowered branches above. Flowers medium-sized. Sepals and petals green. Dorsal sepal elliptic-lanceolate,

acute, about 1.9–2 cm. long and 5 mm. wide. Lateral sepals similar, slightly larger. Petals elliptic-oblong, somewhat shorter than the sepals and often a little broader. Lip free, deeply 3-lobed, about 1.5 cm. long; lateral lobes obliquely triangular-oblong, obtuse; mid-lobe larger, ovate, acute, shortly unguiculate; disc below with a large sulcate callus which is prolonged-apiculate in front, and with several close verrucose ridges, white and yellow with pink or purplish lines. Column short, biauriculate above, about 6.5 mm. long.

Loreto: Habitat not cited, *Moore 9090*. Brazil (Alto Amazonas, type).

***Laelia undulata*** (Lindl.) L. Wms., *Darwiniana* 5: 76. 1941. *Schomburgkia undulata* Lindl., *Bot. Reg.* 30, Misc. 13, no. 21. 1844; 31: t. 53. 1845.

Amazonas: Prov. of Bagua, Canyon of Río Marañon, sepals ochre, lip pink, *Hutchison 1540*; Same locality, between Santa Rosa and Magdalena, below Milagro on the Mesones–Muro Highway, about 400 m., *Hutchison 1570*. Also Venezuela (type of *Schomburgkia undulata*), Trinidad, Colombia and Bolivia.

***Brassavola retusa*** Lindl., *Bot. Reg.* 33: sub t. 20. 1847. Withner, *Orchidata* 7, No. 6: 234, t., 1968.

Plant medium-sized. Stem slender, gradually enlarged upward, about 7 cm. long, concealed by imbricating, papery sheaths. Leaf solitary, apparently linear-terete, slightly curved, obtuse, about 19.5 cm. long and 5 mm. wide. Inflorescence solitary, terminal, 1-flowered; peduncle about 7 cm. long; pedicellate ovary stout, about 6.5 cm. long. Flower small for the genus. Sepals and petals greenish white, lip white. Dorsal sepal oblong-oblong-oblanceolate, acute, about 2.3 cm. long. Lateral sepals obliquely oblong-lanceolate, about as long as the dorsal sepal but wider, acute. Petals similar to the dorsal sepal but slightly smaller, oblique. Lip oblong-obovate, indistinctly lobulate in the middle of each side, cuneate below, subtruncate in front with a sharp point in the middle, about 2.2 cm. long and 1.35 cm. wide; disc with a low central keel throughout.

Northern Peru probably, *Moore s.n.* Also Venezuela (“Maracaybo”) type.

This description was prepared from a drawing with notes by Dr. Carl L. Withner, *Orchidata* 7, no. 6: 234. 1968.

***Scaphyglottis affinis*** Poepp. & Endl. *Nov. Gen. ac Sp.* 1: 59, t. 99-A. 1836. *Ponera affinis* Reichb. f., *Bonpl.* 2: 22. 1854. *Maxillaria affinis* (Poepp. & Endl.) Garay, *Caldasia* 8, no. 40, 527. 1962. Also Colombia.

*Scaphyglottis leucantha* Reichb. f., *Linnaea* 22: 856. 1849. = ***S. graminifolia*** (Ruíz & Pav.) Poepp. & Endl. *Nov. Gen ac Sp.* 1: 59,



t. 99 B. 1836. This concept is characterized by shorter and broader leaves than in the usual form of *S. graminifolia*, but the floral parts seem to be indistinguishable.

*Scaphyglottis parviflora* Poepp & Endl. Nov. Gen. ac Sp. 1: 58, t. 97. 1836. = *Maxillaria parviflora* (Peopp. & Endl.) Garay, Bot. Mus. Leaf. Harvard Univ. 21, No. 9: 258. 1967.

*Scaphyglottis pendula* Poepp. & Endl. Nov. Gen. ac Sp. 1: 58, t. 98. 1836. = *Maxillaria ramosa* Ruiz & Pav. Syst. Veg. Fl. Peru et Chil. 1: 226. 1798, fide L. A. Garay.

*Scaphyglottis sublibera* (C. Schweinf.) Dressler, Taxon 13: 247. 1964. *Epidendrum subliberum* C. Schweinf., Bot. Mus. Leaf. Harvard Univ. 15: 144, t. 44. 1952.

*Scaphyglottis Tafallae* Reichb. f., Linnaea 22: 855. 1849. = *Maxillaria ramosa* Ruiz & Pav. Syst. Veg. Fl. Peruv. et Chil 1: 226. 1798, fide L. A. Garay.

*Ponera affinis* Reichb. f., Bonpl. 2: 22 1854. *Maxillaria affinis*, (Peopp. & Endl.) Garay, Caldasia 8, no. 40. 527. 1862.

*Ponera pleurostachys* Linden & Reichb. f., Bonpl. 2: 282 1854. = *Orleanesia pleurostachys* (Linden & Reichb. f.) Garay & Dunsterv. Venez. Orch. Illustr. 3: 228. 1965.

*Orleanesia pleurostachys* (Linden & Reichb. f.) Garay & Dunsterv. Venez. Orch. Illustr. 3: 228, t., 1965. *Ponera pleurostachys* Linden & Reichb. f., Bonpl. 2: 282. 1854. *Orleanesia Pradei* Schweinf. & Garay, Arquiv. Jard. Bot. Rio. 12: 182, figs. 1-3. 1952.

Plant large, up to more than 1 m. tall, epiphytic. Stems clustered, elongate-fusiform, distichously many-leaved, entirely concealed by close, gray, tubular leaf-sheaths, up to about 40 cm. tall. Leaves numerous, elliptic-oblong to oblong-linear, broadly obtuse, bilobulate and apiculate at the apex, clasping at the base, up to 22 cm. long and 2.4 cm. wide, fleshy. Inflorescence terminal, up to 62 cm. long, entirely concealed by numerous, close, tubular sheaths, paniculate above with remote, short, spreading, few- to many-flowered branches. Flowers rather large, greenish yellow to pink. Dorsal sepal oblong-lanceolate, acute or acuminate, 12-13 mm. long, 4 mm. wide. Lateral sepals obliquely triangular-lanceolate or ovate-lanceolate, a little shorter and broader than the dorsal sepal, acute and mucronate. Petals obliquely and narrowly oblanceolate, acute, slightly shorter than the sepals but much narrower. Lip simple, oblong-obovate, broadly rounded, rounded-subtruncate or bilobulate and minutely apiculate in front, rounded at the sessile base, 8.2-10 mm. long, 5.5-7 mm. wide above. Column short and broad, arcuate, broadly winged toward the base, about 7.2-8.5 mm. long at the back.

Amazonas: Prov. of Bagua, canyon of Río Marañon, below Milaf gro on the Mesones-Muro Highway, Rentema, Km. 243, east o-

Olmos, *Hutchison 1541* (flowers pink). Also Venezuela (type of *Orleanesia Pradei*) and Colombia (type of *Ponera pleurostachys*).

*Orleanesia Pradei* Schweinf. & Garay, *Arquiv. Jard. Bot.* 12: 182, figs. 1-3. 1952. = **O. pleurostachys** (Linden & Reichb. f.) Garay & Dunsterv. *Venez. Orch. Illustr.* 3: 228. 1965. *Ponera pleurostachys* Linden & Reichb. f., *Bonpl.* 2: 282. 1854.

*Isochilus graminifolius* HBK. *Nov. Gen. et Sp.* 1: 340, t. 78. 1816. = **Maxillaria graminifolia** (HBK.) Reichb. f., *Walp. Ann.* 6: 538. 1863.

*Galeandra pubicentrum* C. Schweinf., *Am. Orch. Soc. Bull.* 11: 429, t. 12. 1943. = **G. Stangeana** Reichb. f., *Bonpl.* 4: 323. 1856.

*Bletia ciliata* Presl *Rel. Haenk.* 1, *Livr.* 2: 99. 1827. = **Sobralia ciliata** C. Schweinf. *comb. nov. supra.*

*Bletia ensiformis* Ruíz & Pav. *Syst. Veg. Fl. Peruv. et Chil.* 1: 230. 1798. = **Epidendrum cyperifolium** C. Schweinf., *Bot. Mus. Leafl. Harvard Univ.* 16: 10. 1953.

**Chysis aurea** Lindl., *Bot. Reg.* 23: t. 1937. 1837. San Martín: Habitat not cited, 800 m., semi-terrestrial on rotten log, in medium light and temperature, "flowers cream with slight yellow and pink castings," *Moore 1060*. Also Mexico, through Central America to Venezuela (type) and Colombia.

### **Bulbophyllum bracteosum** C. Schweinf. sp. nov.

Herba magna, epiphytica. Pseudobulbus oblongo-conicus, unifolius. Foliolum lanceolato-oblongum, sessile, basi cuneatum. Inflorescentia basalis, folium cum pseudobulbo subaequans; pedunculus vaginis pluribus, remotis, brevibus, tubulatis ornatus; racemus brevis, dense multiflorus. Florum bracteae conspicuae, ovato-oblongae, imbricantes. Flores minuti, carnosii. Sepala campanulato-conniventia, oblongo-ovata, acuta; sepala lateralia obliqua, et videtur omnino connata. Petala multo minora, linearia, apice rotundata. Labellum carnosissimum, valde recurvum, ovatum, longitudinaliter sulcatum.

Plant large, epiphytic, more than 30 cm. tall. Roots fibrous, elongate, glabrous. Pseudobulb oblong-conic, about 5 cm. long, unifoliate, apparently complanate. Leaf lanceolate-oblong, sessile, about 27 cm. long (apical portion incomplete), cuneate below, about 3.5 cm. wide. Inflorescence basal, about equaling the leaf together with the pseudobulb, spreading; peduncle stout, abruptly nodding at the apex, about 33 cm. long, provided with 7 remote, short, tubular sheaths which are about 2 cm. long; raceme short, densely many-flowered, about 7 cm. long (immature in the type). Floral bracts prominent, imbricating, ovate-oblong, obtuse, up to 16 mm. long, and 6 mm. wide. Flowers minute, very fleshy. Sepals campanulate-connivent. Dorsal sepal oblong-ovate, concave, acute, about 5.2 mm. long and 3 mm. wide. Lateral sepals obliquely ovate, entirely connate into a semi-

orbicular-ovate, concave lamina which is about as long as the dorsal sepal and 5 mm. wide. Petals much smaller than the sepals, submembranaceous, linear, rounded at the apex, abruptly dilated into a fleshy-thickened base, about 2 mm. long and 0.6 mm. wide. Lip very fleshy, ovate, strongly recurved, longitudinally sulcate, obtuse, about 2.8 mm. long and 2 mm. wide.

Cuzco: Prov. of Convención, Choquellwanca, 1,500 meters, August 1959, *C. Vargas C. 12974*. (Type in Herb. Ames No. 090574.)

**Bulbophyllum pachyrrhachis** (A. Rich.) Griseb. Fl. Brit. W. Ind. Is. 613. 1864, as *Bolbophyllum pachyrrhachis*. *Pleurothallis pachyrachis* A. Rich., La Sagra Hist. Nat. Isl. Cub. 11: 234, t. 74. 1850.

Plant medium-sized, with a slender or stout creeping rhizome, epiphytic. Pseudobulbs 4 cm. or less apart on the rhizome, ovoid-conic, 4-angled, bifoliate at the apex, up to 5 cm. long. Leaves narrowly elliptic-oblong to linear-oblong, acute to obtuse, cuneate at the sessile base, rarely up to 19.5 cm. long and 3 cm. wide. Inflorescence basal, more or less surpassing the leaves, erect to spreading or arcuate, about 10–57 cm. long; peduncle slender to stout, provided with numerous short, tubular, remote sheaths; raceme about 9–21 cm. long with a stout, more or less swollen rachis. Flowers numerous, very small, more or less dense, quaquaversal, greenish yellow spotted with purple or wine-color. Dorsal sepal lanceolate-ovate, caudate-acuminate, strongly cucullate, about 4.5–6 mm. long. Lateral sepals similar but slightly longer and narrower than the dorsal sepal, sub-oblique, adnate to the column-foot. Petals much smaller than the sepals, ovate-oblong, rounded at the apex, up to 2 mm. long. Lip very fleshy, arcuate-recurved, triangular in section, ovate-oblong, sulcate above, obtuse, about 2.5 mm. long and 1.2 mm. wide. Column abbreviated, 3-toothed at the apex with the lateral teeth longer, extended into a prominent foot. Ovary with 2 bracteoles extending into triangular points between the dorsal and lateral sepals.

Loreto: Habitat not cited, flowers cream-color with a maroon lip, *Moore 8040*. Aso Florida (one station), Mexico to Panama, the West Indies (Cuba, type of *Pleurothallis pachyrachis*), Amazonas, and Bolivia.

*Buesiella pusilla* C. Schweinf., Bot. Mus. Leafl. Harvard Univ. 15: 153, t. 48. 1952. = *Rusbyella pusilla* (C. Schweinf.) Garay, *Caldasia* 10, no. 47: 237. 1968.

*Cyrtopodium naiguatae* Schltr. Fedde Repert. Beih. 6: 43. 1919. = *Cyrtopodium paniculatum* (Ruíz & Pav.) Garay, *Caldasia* 8, no. 40: 524. 1962.

*Cyrtopodium paniculatum* (Ruíz & Pav.) Garay, *Caldasia* 8, no. 40: 524. 1962. *Maxillaria paniculata* Ruíz & Pav. Syst. Veg. Fl. Peruv. et Chil. 1: 223. 1798. *Cyrtopodium naiguatae* Schltr. Fedde Repert. Beih. 6: 43. 1919.

Plant robust, apparently about 8 dm. or more high. Pseudobulbs oblong-conic, 4- to 6-leaved, entirely concealed by several broad, imbricating sheaths, about 10-13 cm. high. Leaves oblong-linear, acuminate, clustered and immature at the time of flowering. Scape lateral, stout, up to 80 cm. tall; peduncle up to 60 cm. tall, provided with several remote, short, close, tubular sheaths; inflorescence loosely paniculate, with 4 or 5 spreading, loosely flowered branches. Floral bracts conspicuous, ovate to elliptic or oval, acuminate with undulate margins, about 4 cm. or less long, subequaling the slender pedicellate ovary. Flowers medium-sized, yellow and brown or reddish brown. Sepals with strongly undulate margins. Dorsal sepal elliptic to oval, obtuse or subacute, about 17 mm. long and 9 mm. wide. Lateral sepals very similar. Petals elliptic-obovate, slightly oblique, somewhat undulate on the margins, a little shorter than the sepals. Lip slightly shorter than the rest of the perianth, about 13 mm. long including the short narrow claw, deeply 3-lobed, about 19 mm. wide across the lateral lobes; lamina broadly and transversely ovate in outline, subcordate at base, with a prominent subquadrate, verrucose, somewhat bilobed callus between the lateral lobes; lateral lobes conspicuous, oval-dolabriform; mid-lobe flabellate-semiorbicular or broadly reniform, bilobulate in front, the rounded anterior margins with numerous verrucose thickenings. Column small, dilated above, about 6 mm. long, produced into a narrow foot.

Huánuco: Pillao, on mountains and in rocky places, *Pavón s.n.* (type of *Maxillaria paniculata*).—Piura: Prov. of Huancabamba, between Sondor and Sondorillo, 1,950 m., *Hutchison 1587*. Also Colombia and Venezuela.

### **Catasetum Moorei** C. Schweinf. sp. nov.

Herba magna, spectabilis, epiphytica, cum rhizomate repenti, gracili, lignoso. Pseudobulbi subapproximati, in sicco anguste cylindranei vel subfusiformes, pluriarticulati, vaginis foliiferis, imbricantibus juventute celati, folia quinque gerentes. Folia anguste oblanceolata vel elliptico-lanceolata, acuminata, in petiolum indistinctum sensim angustata, plicata. Inflorescentia lateralis, arcuata, ut videtur folia paulo superans, superne laxe multiflora. Flores grandes. Sepala valde similia, elliptica vel lanceolato-elliptica, acuta vel acuminata. Petala ovato-elliptica, acuminata, sepalis paulo breviora sed latiora. Labellum simplex, rotundato-ovatum, subobtusum, basi late rotundatum, lateribus incurvis. Columna arcuata, apice longe rostrata, cum antennis longis symmetricis gracilibus.

Plant large and showy, epiphytic, with a slender, woody rhizome. Roots coarse and stout, glabrous. Pseudobulbs subapproximate to 2 cm. apart, narrowly cylindrical to fusiform in the dried specimen, 3- to 5-jointed, entirely concealed in youth by membranaceous, distichously imbricating leaf-bearing sheaths, about 3-10 cm. high, bearing several (5 or more) approximate leaves. Leaves narrowly oblanceolate to elliptic-lanceolate, acuminate, gradually narrowed below to an indistinct petiole, 3- to 5-nerved, up to 41 cm. long and 6 cm. wide. Inflorescence somewhat exceeding the leaves, arcuate; peduncle (incomplete) 21.5 cm. long, provided with 4 or more short, close, tubular sheaths; rachis loosely many-flowered. Flowers rather large, with spreading segments, chartreuse-yellow with greenish spots. Dorsal sepal elliptic, concave, acute or acuminate, about 3.5 cm. long and 1.4 cm. wide when expanded. Lateral sepals similar, lanceolate-elliptic,

acuminate, slightly oblique, about 3.6 cm. long and 1.6 cm. wide. Petals ovate-elliptic, acuminate, about 3.4 cm. long and 1.7 cm. wide. Lip simple, broadly round-ovate, with incurved sides, subobtusate, callose-thickened at base, broadly rounded below, with very minutely denticulate margins, about 2.5 cm. long and 2.6 cm. wide when expanded. Column arcuate, long-rostrate, about 2.1 cm. long in natural position, with a pair of symmetrical long tendrils.

This species appears to be allied to the Brazilian *Catasetum Trulla* Lindl., but it differs in the color of the flowers and very dissimilar lip.

Loreto: Iquitos, Río Itaya, July 1964, *Moore*, s.n. (type in Herb. Ames No. 090575).

**Cycnoches Cooperi** Rolfe, Kew Bull. (1913) 143.

This species has been designated as *C. pentadactylon* Lindl. var. *Cooperi* Pabst, Orquidea 24, no. 2: 46. 1962.

*Cycnoches peruviana* Rolfe, Lindenia 7: t. 301. 1891. = *C. Eger-tonianum* Batem., Orch. Mex. et Guat. t. 40 (in part) 1842.

This synonymy is according to P. H. Allen, Orch. Journ. 1, no. 9: 350. 1952. (Monograph of *Cycnoches*.)

Also San Martín: Habitat not cited, 800 m., in medium light and temperature, flowers yellowish cream-color with greenish red speckling, *Moore 1050*.

**Lueddemannia Pescatorei** Linden & Reichb. f., Bonpl. 2: 281. 1854. *L. triloba* Rolfe, Kew Bull. (1895) 283. *L. Vyvereana* Schltr., Orchis 6: 113, t. 25, figs. 7-13. 1912.

*Lueddemannia triloba* Rolfe, Kew Bull. (1895) 283. = *L. Pesca-torei* Linden & Reichb. f., Bonpl. 2: 281. 1854. *Dunsterv.* & Garay Venez. Orch. Illustr. 3: 164, t., 1965. Also Colombia (type of *L. Pesca-torei*), Venezuela and Ecuador.

*Lueddemannia Vyvereana* Schltr., Orchis. 6: 113, t. 25, figs. 7-13. 1912. = *L. Pescatorei* Linden & Reichb. f.

**Peristeria guttata** Knowl. & Westc. Fl. Cab. 2: 99, t. 70. 1838.

Plant large, showy, epiphytic. Pseudobulbs oblong-ovoid, up to 10 cm. long, usually trifoliate at the apex. Leaves elliptic-lanceolate, acuminate, gradually narrowed below to a narrow petiole which is somewhat dilated and sheathing at the base, up to 60 cm. long and 11 cm. wide, plicate. Scape lateral, short, erect to pendent, bearing 3 to 9 approximate flowers at the apex. Flowers medium-sized for the genus, fleshy, pale salmon to cream-color or pale yellow-brown, thickly covered with reddish purple or maroon spots. Sepals united for about one-fourth of their length. Dorsal sepal oblong-ovate, obtuse, about 20-27 mm. long, up to 20 mm. wide. Lateral sepals similar but a little broader, connate below and adnate

to the base of the lip. Petals ovate-elliptic, distinctly smaller than the sepals. Lip jointed forming a hypochile and epichile; hypochile deeply concave, ovate, adnate to the base of the column; epichile broadly ovate, recurved, with incurved sides, white, purplish above with maroon stippling, about 15 mm. long and nearly 20 mm. wide when expanded. Column very short and stout, dilated at base, narrowed above, wingless, orange-brown, maroon-spotted.

Loreto: Habitat not cited, flowers cream-color with maroon spots, *Moore 0004*. Also Colombia, Venezuela, the Guianas, and Brazil (type).

***Stanhopea anfracta*** Rolfe, *Orch. Rev.* 12: 357. 1904.

This species was regarded as distinct by Dr. C. H. Dodson, the present monographer of the genus *Stanhopea*, in 1967; not referable to a small form of *S. Wardii* Lodd. ex Lindl., as treated in my "Orchids of Peru."

Pasco: Prov. of Oxapampa, Palcazu, flowers orange, column white with purple spots, very fragrant, *Woytkowski 31*.—San Martín: Zepelacio near Moyobamba, 1,100–1,200 m., epiphyte in forest, flowers yellow and pale violet, *Klug 3617*; Same locality, inflorescence 8-flowered, flowers brown-yellow and cream, *Klug 3684*.

***Stanhopea candida*** Barb. Rodr. *Gen. et Sp. Orch. Nov.* 1: 101. 1877. *S. Randii* Rolfe, *Kew Bull.* (1894) 363.

Huánuco: Tingo María, 670 m., epiphytic on trees, plant 30 cm. high, flowers always in groups of three, white with interior of lip purple-spotted, *Carpenter 122*.—Loreto: Region of the Marañon, from Iquitos up to the mouth of the Santiago at the Pongo de Manseriche, *Tessmann 4984*. Vicinity of Iquitos, 100 m., epiphyte, flowers snow-white dotted with red-violet, *Klug 10084, 10110, 10034*. Also Colombia and Brazil (type).

*Stanhopea peruviana* Rolfe, *Bot. Mag.* 138: t. 8417. 1912. = ***S. florida*** Reichb. f., *Gard. Chron. new ser.* 12: 615. 1879, fide C. H. Dodson.

*Stanhopea Randii* Rolfe, *Kew Bull.* (1894) 363. = ***S. candida*** Barb. Rodr. *Gen. et Sp. Orch. Nov.* 1: 101. 1877, fide C. H. Dodson.

***Stanhopea Wardii*** Lodd. ex Lindl. *Sert. Orch.* t. 20. 1838.

This species was included in my "Orchids of Peru" on the basis of the Peruvian representatives of *S. anfracta* Rolfe and *S. peruviana* Rolfe which were regarded as synonyms of *S. Wardii*, but which are now otherwise treated. See the above treatment.

*Stanhopea xytriophora* Reichb. f., Gard. Chron. (1868) 842. = *S. deltoidea* Lem. Illustr. Hort. 9: sub t. 340. 1862, fide C. H. Dodson.

***Gongora atropurpurea* Hook., Exot. Fl. 3: t. 178. 1827.**

Plant large, epiphytic. Pseudobulb ovoid (more or less elongate), plurisulcate, bifoliate, up to 9 cm. long. Leaves elliptic-lanceolate to obovate-oblong, acuminate, long-narrowed to a slender, indistinctly-petioled base, up to about 55 cm. long and 12 cm. wide, plicate, 5-nerved. Inflorescence lateral, slender, erect to arcuate, rarely up 100 cm. long, loosely many-flowered above. Flowers medium-sized, red, brown-purple or dark purple, occasionally black-spotted. Dorsal sepal adnate to the column, oblong-ovate, acute, concave, about 17-21 mm. long and 8 mm. wide. Lateral sepals obliquely triangular-ovate, acuminate, rather longer than the dorsal sepal but much broader. Petals much smaller than the sepals, long-decurrent on the column, obliquely oblong and incurved above, tapering to an awned apex. Lip distinctly and narrowly clawed, about 20 mm. long, long-acuminate, sharply divided into a short hypochile and longer epichile; hypochile provided at the base with a pair of narrowly oblong, obtuse horns and in front by 2 elongate, long-attenuate bristles; epichile ancipitously semiovate. Column slender, arcuate, extended into a conspicuous foot, about 20 mm. long including the foot.

Huánuco: Carpish, flowers red, with odor of cinnamon, *Woytkowski* 8.—Loreto: Lower Río Itaya near Iquitos, about 170 m., in rain forest, *Tessmann* 3522.—San Martín: Habitat not cited, *Moore* 9050. Also Tobago, Trinidad (type), Venezuela, and British Guiana.

*Gongora maculata* Lindl., Bot. Reg. 19: t. 1616. 1833. = *G. quinquenervis* Ruiz & Pav. Syst. Veg. Fl. Peruv. et Chil. 1: 227. 1798.

*Gongora nigropunctata* Schltr. Fedde Repert. Beih. 9: 99 1921. = *G. atropurpurea* Hook. Exot. Fl. 3: t. 178. 1827.

***Gongora quinquenervis* Ruiz & Pav. var. *leucochila* (Lindl.) C. Schweinf., comb. nov. *G. maculata* Lindl. var. *leucochila* C. Schweinf., Fieldiana: Bot. 30, no. 3: 617. 1960.**

Huánuco: 7 km. up Río Monzón from bridge above Tingo María, about 680 meters, *Bennett* 477.

***Gongora truncata* Lindl. Bot. Reg. 29, Misc. 42, no. 52. 1843. var. *Warscewiczii* Regel., Gartenfl. 8: 307, text fig. 1859.**

This concept was described as a variety of the Mexican *G. truncata* from a plant cultivated in the Botanical Garden of St. Petersburg and collected in the mountains of Peru.

Pseudobulbs oval, 4-sided, lightly compressed, narrowed above, deeply furrowed, bifoliate. Leaves oval-lanceolate, tapering to an acuminate apex, plicate,

up to more than 30 cm. long. Inflorescence pendent, 60 cm. long, with very fragrant flowers. Flowers rather large, dull yellow with many purple-brown spots. Dorsal sepal obovate-oblong, acute, about 2.7 cm. long. Lateral sepals about as long as the dorsal sepal but much broader when the rolled back sides are expanded, and apparently obliquely rhombic-ovate. Petals (of the type) very minute, triangular. Lip divided into a hypochile and epichile; hypochile with a pair of prominent, erect, oblong, obtuse lobules and in front with 2 half shorter bristles; epichile longer than the hypochile, compressed-semiovate, acuminate with a beak-shaped apex. Column long, arcuate, more than 2 cm. long.

**Coryanthes Balfouriana** Hort. Sanders, *Orch. World* 2: 28, figs. 1911.

This species, while not adequately described, appears from the figures cited, to be referable to *C. biflora* Barb.-Rodr.

**Coryanthes biflora** Barb.-Rodr. *Gen et Sp. Orch. Nov.* 1: 103. 1877; Cogn., *Martius Fl. Bras.* 3, pt. 5: 511, t. 98. 1902. *Coryanthes punctata*.

Plant epiphytic. Pseudobulbs clustered, oblong-conic, attenuated above, bifoliate, 6-7 cm. long. Leaves petioled; lamina vary narrowly elliptic-lanceolate, acute or short-acuminate, narrowed below, about 20 cm. long and 2.5 cm. wide; petiole short, channelled, 3-5 cm. long. Inflorescence lateral, pendent, robust, with the peduncle flexuous and provided with several short, remote, appressed sheaths, loosely 2-flowered above. Flowers large but small for the genus. Dorsal sepal rhomboid-oblong, with recurved acute apex, citron-yellow, 2-2.5 cm. long. Lateral sepals much larger, very obliquely semiovate and falcate, about 5.5-6 cm. long. Petals linear-ligulate, subacute to obtuse, a little longer than the dorsal sepal, pale yellow. Lip nearly as long as the lateral sepals; hypochile subhemispheric, densely pubescent above, whitish rose; mesochile short, narrow, pubescent or glabrous with transverse, thick, undulate ridges; epichile larger than the hypochile, deep yellow, thickly purple-spotted within, deeply saccate, subquadrate, 3-toothed at the apex, the lateral teeth being triangular-oblong and uncinatate and the middle tooth ligulate with a truncate apex. Column clavate, about 3 cm. long.

Alto Amazonas, near Manáos, *Rodríguez s.n.*, *Martius 2774* in part.

Dr. L. A. Garay, in *Dunsterv. & Garay, Venez. Orch. Illustr.* 4: 56, t., 1966, identified a Venezuelan collection as referable to this species. This collection is a much larger plant throughout than the type, but is probably referable to *C. biflora*, judging from the gross morphology. In this collection the pseudobulbs reach 15 cm. in length; leaves up to 55 cm. long and 9 cm. broad; flowers pale brown; dorsal sepal suborbicular, 4 cm. long and 5.5 cm. broad; lateral sepals 12 cm. long and 8 cm. broad. This collection, as well as the type of *C. biflora*, shows a dense pubescence on the outer surface of the hypochile.



*Coryanthes punctata* Beer Prakt. Stud. Orch. 222. 1854. = *C. biflora* Barb.-Rodr. Gen. et Sp. Orch. Nov. 1: 103. 1877. Also Venezuela and Brazil (type of *C. biflora*).

***Xylobium leontoglossum*** (Reichb. f.) Rolfe, Gard Chron. ser. 3, 5: 458. 1889. *Maxillaria leontoglossa* Reichb. f., Bonpl. 3: 67. 1855. *Xylobium gracile* Schltr. Fedde Repert. Beih. 8: 92. 1921; Mansf. Fedde Repert. Beih. 57; t. 95, nr. 372. 1929. *Xylobium squalens* (Lindl.) Lindl. var. *gracile* (Schltr.) C. Schweinf., Bot. Mus. Leaf. Harvard Univ. 11: 198. 1944.

Plant large, epiphytic, up to about 90 cm. high. Pseudobulbs crowded, unifoliate, ovoid-ellipsoid, about 5–9 cm. long. Leaf long-petioled; lamina lanceolate-elliptic or elliptic-oblong, acute, cuneate, plicate, about 29–60 cm. long and 3.5–11 cm. broad; petiole sulcate, 7–18 cm. long. Inflorescence lateral, more or less erect, up to 37 cm. high; peduncle 25 cm. or less long, provided with 3 or 4 loose, tubular, remote sheaths; raceme up to 13 cm. long, rather loosely several- to many-flowered. Floral bracts relatively minute, much shorter than the slender pedicellate ovary. Flowers medium-sized, creamy white to golden-yellow with red to violet spots. Dorsal sepal oblong-lanceolate, acute, concave, 14–21 mm. long, 3 mm. or more wide. Lateral sepals oblong-lanceolate, strongly falcate, dilated into a prominent mentum at base, about as long as the dorsal sepal but wider, outside with a prominent keel especially above. Petals ligulate, acute, a little shorter than the sepals and much narrower. Lip slightly shorter than the sepals and petals, conspicuously 3-lobed with the sides incurved, about 13–15 mm. long and 5.5 mm. wide just below the middle; lateral lobes semiobovate, rounded-obtuse; mid-lobe obovate to ovate-rounded, very fleshy, densely verrucose on both sides; disc with 3 approximate central keels from base to middle. Column short, semiterete in cross-section, produced into a subequally long foot.

Peru: Habitat not cited, *Mathews* fide J. D. Hooker.—Amazonas: Prov. of Bongará, 5 km. north of north end of Lake Pomacocha, on road to Rioja, 2,000 m., flowers cream-color spotted or flecked with purplish red, *Hutchison & Wright 6793*. Also Colombia (type of *Maxillaria leontoglossa*) and Ecuador (type of *Xylobium gracile*).

*Xylobium squalens* (Lindl.) Lindl. Bot. Reg. 11: sub t. 897. 1825. = ***X. variegatum*** (Ruíz & Pav.) Garay & Dunsterv. Venez. Orch. Illustr. 2: 342, t., 1961. *Maxillaria variegata* Ruíz & Pav. Syst. Veg. Pl. Peruv. et Chil. 1: 222. 1798.

*Xylobium squalens* (Lindl.) Lindl. var. *gracile* (Schltr.) C. Schweinf., Bot. Mus. Leaf. Harvard Univ. 11: 198. 1944. = ***X. leontoglossum*** (Reichb. f.) Rolfe, Gard. Chron. ser. 3, 5: 458. 1889.

***Xylobium variegatum*** (Ruíz & Pav.) Garay & Dunsterv. Venez. Orch. Illustr. 2: 342, t., 1961. *Maxillaria variegata* (Ruíz & Pav.)

Syst. Veg. Fl. Peruv. et Chil. 1: 222. 1798. *X. squalens* (Lindl.) Lindl. Bot. Reg. 11: sub t. 897. 1825.

**Bifrenaria minuta** Garay, Bot. Mus. Leaflet. Harvard Univ. 18: 206, t. 40. 1958.

Plant small, epiphytic, up to 12 cm. high. Pseudobulbs crowded, ovoid, unifoliate, 1.5–2 cm. high. Leaf petioled; lamina narrowly elliptic-lanceolate, acute, cuneate below, chartaceous, 8–10 cm. long, 1–1.5 cm. wide; petiole 2–3 cm. long. Inflorescence lateral, short, 1-flowered, with peduncle up to 1.5 cm. long. Flowers small. Dorsal sepal oblong-ovate, acute, about 9 mm. long and 4.5 mm. wide. Lateral sepals obliquely ovate or oblong-ovate, acute, a little longer and broader than the dorsal sepal. Petals elliptic-lanceolate, acute, slightly shorter and much narrower than the sepals. Lip rhombic, broadly truncate in front, scarcely callose, about 10 mm. long and 6 mm. wide. Column short, clavate, extended into a prominent foot.

San Martín: Habitat not cited, *Moore 10110*. Also Venezuela (type).

*Lycaste gigantea* Lindl., Bot. Reg. 29, Misc. 15, no. 5. 1843. = **L. longipetala** (Ruíz & Pav.) Garay, *Caldasia* 8, no. 40: 524. 1962. *Maxillaria longipetala* Ruíz & Pav. Syst. Veg. Fl. Peruv. et Chil. 1: 220. 1798.

**Lycaste longipetala** (Ruíz & Pav.) Garay, *Caldasia* 8: no. 40: 524. 1962. *Maxillaria longipetala* Ruíz & Pav. Syst. Veg. Fl. Peruv. et Chil. 1: 220. 1798. *Lycaste gigantea* Lindl., Bot. Reg. 29, Misc. 15, no. 5. 1843.

*Lycaste longisepala* C. Schweinf., Bot. Mus. Leaflet. Harvard Univ. 15: 157, t. 50. 1952. = **L. Schilleriana** Reichb. f., *Bonpl.* 3: 215. 1855. Reichb. f. *Refug. Bot.* 2: t. 130. 1878.

Amazonas: Prov. of Chachapoyas, Cerros Calla Calla, 5 km. above Leimebamba, on road to Balsas, region called "San Miguel," 2,400 m., sepals and petals dark yellowish, lip orange-red, *Hutchinson & Bennett 4556*.—Huánuco: Prov. of Huánuco, Sariapampa, 3,200–3,600 m., "brow of the jungle," *Woytkowski 289*.

*Zygopetalum bicallosum* Reichb. f., *Otia Bot. Hamb.* 1: 9. 1878. = **Maxillaria bicallosa** (Reichb. f.) Garay, *Caldasia* 8, no. 40: 527. 1862.

*Zygopetalum brachystalix* Reichb. f., *Walp. Ann.* 6: 660. 1863. = **Otostylis brachystalix** (Reichb. f.) Schltr., *Orchis* 12: 40, fig. 5. 1918.

**Otostylis brachystalix** (Reichb. f.) Schltr., *Orchis* 12: 40, fig. 5. 1918; *Ames Orchid.* 7: 49, t. 3. 1922. *Zygopetalum brachystalix* Reichb. f., *Walp. Ann.* 6: 660. 1863.

Plant large, terrestrial. Pseudobulbs approximate, ovoid-pyriform, about 2 cm. high, concealed by distichous sheaths and the bases of the 3-4 leaves. Leaves linear-oblongate to linear-elliptic, long-acuminate, gradually narrowed to a slender petioled base, plicate, up to 70 cm. long, 1-4 cm. wide. Scape lateral, basal, up to 107 cm. long in age; peduncle elongate, provided with several remote, short, tubular sheaths; raceme loosely many-flowered, up to 25 cm. long. Flowers showy, white with yellow on lip, about 2.5 cm. across when spread out. Dorsal sepal oblong-elliptic, about 14-18 mm. long and 8-12 mm. wide. Lateral sepals similar but a little broader. Petals spatulate-elliptic, slightly smaller than the sepals. Lip 3-lobed, about 9-12 mm. long, with the lateral lobes reduced to triangular, obtuse, incurved auricles; mid-lobe suborbicular to ovate-semiorbicular, broadly rounded and often apiculate, up to 12 mm. wide; lamina near the base with a fleshy, semicircular, carunculate callus extending between the lateral lobes. Column short, about 5 mm. long, with a pair of conspicuous auricles above, produced into a short foot.

Loreto: Habitat not cited, rare terrestrial in swamp mud, at sea level, 80°-90° temperature, *Moore 840*. Also Trinidad (type of *Zygopetalum brachystalix*), British Guiana, and Venezuela.

**Batemannia armillata** Reichb. f., Gard. Chron. new ser. 3: 780. 1875; Reichb. f. Xen. Orch. 3: 40, t. 215, fig. V, 7-15. 1881.

Plant medium-sized, about 25 cm. or less high. Pseudobulbs approximate, pyriform to oval, four-angled, unifoliate or bifoliate, 3-4.5 cm. high. Leaves lanceolate-elliptic, acute, sessile at the cuneate base, about 15-20 cm. long, apparently 7 cm. or less wide. Inflorescence pendent, loosely 2- to 6-flowered above, about 10-20 cm. long. Segments spreading. Sepals and petals green. Dorsal sepal elliptic-oblong, obtuse, about 1.5 cm. long and 7.5 mm. wide. Lateral sepals oblong-elliptic, acute, about as long as the dorsal sepal but conspicuously narrower. Petals obliquely oblong-ovate, long-decurrent on the column-foot, a little shorter than the dorsal sepal but equally broad. Lip deeply 3-lobed, with the basal part erect and parallel with the column, and the anterior part abruptly deflexed; lateral lobes relatively small, obliquely oblong-ovate, dentate at the apex, erect-incurved in natural position; mid-lobe much larger, broadly rhombic, apiculate; disc with a transverse dentate keel between the lateral lobes, white with yellow at tip. Column arcuate, denticulate at the apex, produced into a prominent foot.

Peru: Vicinity of Taulis, *Steumpfle s.n.* Also Colombia (type).

**Stenia guttata** Reichb. f., Gard. Chron. new ser. 14: 134. 1880.

The following recent collections of this species from definite localities show slight additions to the flower as described for the type.

Flower brilliant yellow-green thickly spotted with dark red. Dorsal sepal elliptic-ovate, 20-24 mm. long and 6-8 mm. wide. Lateral sepals similar but slightly wider below, somewhat oblique. Petals broadly elliptic, acute, a little shorter than the sepals but much broader. Lip relatively small, 15-17 mm. long.

Huánuco: Prov. of Pachitea, one-half km. from Muña, 1,870 meters, on tree stump in light shade, *Bennett s.n.*; Near Tingo María,

along Huallaga River, about 800 m., in rather dense shade, *Bennett s.n.*—Pasco: Prov. of Oxapampa, near Yaupi, 2,100 m., on steep slope, epiphyte in thin scrubby forest, in moderate shade, *Bennett & Northen s.n.*

***Stenia pallida*** Lindl., Bot. Reg. 23: sub t. 1991. 1837; Bot. Reg. 24: t. 20. 1838.

Plant small, epiphytic. Pseudobulbous stems minute, approximate, bearing 1 to 3 leaves. Leaves elliptic to broadly oblanceolate, acute, more or less narrowed to a petiolate base, plicate, up to 15 cm. long and 4 cm. wide. Inflorescence abbreviated, 1-flowered, prostrate, with peduncle up to 6 cm. long. Flower medium-sized, pale yellow-green or greenish white. Dorsal sepal oblong-ovate, acute, 25–35 mm. long, 8–17 mm. wide. Lateral sepals obliquely lanceolate-ovate, acute, conspicuously larger than the dorsal sepal. Petals similar to the dorsal sepal but slightly narrower. Lip smaller than the other segments, deeply saccate and forming a boat-shaped lamina triangular-ovate from a broadly rounded, sessile base, acute, about 20–32 mm. long and wide when spread out; disc with a transverse multidentate callus near the base, white to yellowish with maroon spots below. Column short, produced into a short foot.

Huánuco: Prov. of Leoncio Prado, near Tingo María, along Huallaga River, 800 m., epiphyte, *Bennett s.n.*—Junín: Prov. of Tarma, near San Ramón, *Bennett s.n.*—San Martín: Locality not cited, 800 m., in deep shade, “flowers white to cream with yellowish castings,” rare, *Moore 1300*. Also Trinidad, British Guiana (type), and Venezuela.

***Kefersteinia lojæ*** Schltr. Fedde Repert. Beih. 8: 93. 1921. *Chondrorhyncha lojæ* (Schltr.) C. Schweinf., Bot. Mus. Leaflet. Harvard Univ. 11: 216. 1944.

It now appears that the concept *Kefersteinia* should be regarded as separable from the genus *Chondrorhyncha*.

***Kefersteinia mystacina*** Reichb. f., Gard. Chron. new ser. 15: 530. 1881.

Plant small, semiterrestrial, about 16 cm. or less high. Stems minute, approximate, concealed and surpassed by distichous leaf-bearing sheaths. Leaves oblanceolate or narrowly elliptic-lanceolate, acuminate, cuneate to a sessile or long-narrowed base, up to 14 cm. long and about 2.2 cm. wide. Inflorescence lateral, 1-flowered, short; peduncle slender, about 3 cm. long, with several short sheaths below. Flower large for the plant. Dorsal sepal narrowly oblong-lanceolate, more or less acute, up to 17 mm. long and 5 mm. wide. Lateral sepals similar but somewhat longer and narrower, lightly oblique, subacute. Petals obliquely ovate-oblong, obtuse or acute, a little shorter than the dorsal sepal but noticeably broader. Lip simple with a short narrow claw, about 15 mm. long; lamina ovate-suborbicular in outline, deeply lacerate-fimbriate except at the cuneate base, apparently about 12–15 mm.

wide; disc with a conspicuous, transverse, semilunate callus below, protruding beyond the sides of the lamina. Column short, clavate, about 6 mm. high, with a short foot.

San Martín: Locality not cited, 800 m., in deep shade, sepals and petals greenish white to cream-color, lip white or slightly pinkish, with wine-colored veins, *Moore 4020*. Out of the Moyobamba area, *Bennett 411*.—Tumbes: Locality? *Bennett s.n.* Also Colombia (type).

**Kefersteinia pusilla** C. Schweinf., comb. nov. *Chondrorhyncha pusilla* C. Schweinf., Am. Orch. Soc. Bull. 12: 384, t., 1944.

*Chondrorhyncha fimbriata* (Linden & Reichb. f.) Reichb. f. Saund. Refug. Bot. 2: t. 107. 1878. = **Chondrorhyncha flaveola** (Linden & Reichb. f.) Garay, Bot. Mus. Leaflet. Harvard Univ. 21, no. 9: 256. 1967. *Zygopetalum flaveolum* Linden & Reichb. f. ex Reichb. f., Walp. Ann. 6: 662. 1863.

**Maxillaria affinis** (Poepp. & Endl.) Garay, Caldasia 8, no. 40: 527. 1962. *Scaphyglottis affinis* Poepp. & Endl. Nov. Gen. ac Sp. 1: 59, t. 99A. 1836. *Ponera affinis* Reichb. f., Bonpl. 2: 22. 1854.

**Maxillaria alpestris** Lindl., Benth. Pl. Hartw. 154. 1845. *Maxillaria xantholeuca* Schltr. Fedde Repert. Beih. 8: 98. 1921; Mansf., Fedde Repert. Beih. 57: t. 97, no. 381. 1929. *Maxillaria xantholeuca* Schltr. var. *peruviana* C. Schweinf., Bot. Mus. Leaflet. Harvard Univ. 11: 293. 1945. *Maxillaria trigona* C. Schweinf., Am. Orch. Soc. Bull. 13: 266, t., 1945.

*Maxillaria aurea* (Poepp. & Endl.) L. Wms. var. *gigantea* (Lindl.) C. Schweinf., Bot. Mus. Leaflet. Harvard Univ. 11: 263. 1945. = **M. aurea** (Poepp. & Endl.) L. Wms.

**Maxillaria bicallosa** (Reichb. f.) Garay, Caldasia 8, no. 40: 527. 1962. *Zygopetalum bicallosum* Reichb. f. Otia Bot. Hamb. 1: 9. 1878. *Maxillaria caespitosa* C. Schweinf., Bot. Mus. Leaflet. Harvard Univ. 11: 264. 1945.

**Maxillaria chartacifolia** A. & S., Sched. Orch. 10: 92. 1930.

Plant large, with a more or less abbreviated rhizome, up to over 60 cm. tall. Pseudobulbs very inconspicuous, complanate, unifoliate, concealed by pairs of closely imbricating, conduplicate, maculate, leaf-bearing sheaths. Leaves narrowly elliptic-oblong to ligulate, acute to acuminate, gradually narrowed to a conduplicate narrow base, up to 59 cm. long and 3 cm. wide. Peduncle slender, much shorter than the leaves, up to 20 cm. long, bearing numerous tubular, marcescent sheaths. Flowers medium-sized, dull brownish red or purplish red. Dorsal sepal

elliptic-oblong, acute, about 17.5 mm. long, and 6–8 mm. wide. Lateral sepals similar, ovate-oblong to oblong-lanceolate, acute, lightly oblique. Petals similar to the dorsal sepal but much shorter, acute to obtuse. Lip oblong-rhombic or ovate-rhombic with incurved sides, erect, parallel to the column and lightly arcuate-recurved in natural position, cuneate below, acute or subacute at the apex, about 13–14 mm. long and 6–7.5 mm. wide when expanded; disc with a more or less distinct central callose thickening through the lower half. Column stout, arcuate, about 7–8 mm. high at the back.

Puno: Prov. of Carabaya, Hda. Quillabamba to Sangari, 1,000 m., epiphyte, *Vargas 17566*. Also Costa Rica (type), Panama, Colombia, and Ecuador.

*Maxillaria crassicaulis* C. Schweinf., Bot. Mus. Leafl. Harvard Univ. 11: 267. 1945. = *M. haemathodes* (Ruíz & Pav.) Garay, Caldasia 8, no. 40: 528. 1962. *Fernandezia haemathodes* Ruíz & Pav. Syst. Veg. Fl. Peruv. et Chil. 1: 240. 1798.

*Maxillaria crocea* Lindl., Bot. Reg. 21: t. 1799. 1835, not Poepp. & Endl., 1836. = *M. Lindleyana* Schltr. Fedde Repert. Beih. 9: 162, in note. 1921.

*Maxillaria discolor* (Lodd. ex Lindl.) Reichb. f., Walp. Ann. 6: 529. 1863. *Dicrypta discolor* Lodd. ex Lindl., Bot. Reg. 25, Misc. 9, no. 145. 1839. *Maxillaria longifolia* (Barb. Rodr.) Cogn., Martius Fl. Bras. 3, pt. 6: 33, t. 11. 1904.

*Maxillaria divaricata* (Barb. Rodr.) Cogn., Martius Fl. Bras. 3, pt. 6: 49, t. 4, fig. 1. 1904. = *M. notylioglossa* Reichb. f., Bonpl. 2: 16. 1854.

*Maxillaria fimbriata* Poepp. & Endl. Nov. Gen. ac Sp. 1: 38, t. 62, fig. 3. 1836. = *Lycaste fimbriata* (Poepp. & Endl.) Cogn., Martius Fl. Bras. 3, pt. 5: 455. 1902.

*Maxillaria haemathodes* (Ruíz & Pav.) Garay, Caldasia 8, no. 40: 528. 1962. *Fernandezia haemathodes* Ruíz & Pav. Syst. Veg. Fl. Peruv. et Chil. 1: 240. 1798. *Maxillaria crassicaulis* C. Schweinf., Bot. Mus. Leafl. Harvard Univ. 11: 267. 1945.

*Maxillaria Huebneri* Schltr., Beih. Bot. Centralbl. 42, Abt. 2: 131. 1925. *Maxillaria verrucifera* C. Schweinf., Bot. Mus. Leafl. Harvard Univ. 11: 292, t. 19. 1945. Also Brazil (type of *M. Huebneri*) and Colombia.

*Maxillaria Jamesonii* (Reichb. f.) Garay & Schweinfurth comb. nov. *Ornithidium Jamesonii* Reichb. f., Linnaea 41: 35. 1876.

Plant large, sprawling, rhizomatose. Rhizome elongate, sparingly branched, apparently wholly or mostly concealed by close, tubular, marcescent sheaths having a triangular acute apex, leaf-bearing in the upper portions of the branches, sparingly producing solitary, long, simple or branched roots. Leaves distichous, deciduous on the lower portions of the branches, 4-5 persisting as open clusters on the upper parts; lamina narrowly elliptic-lanceolate, sharply acute with the upper margins serrulate, cuneate toward the sessile base, up to 10.5 cm. long and 1.7 cm. wide. Flowers solitary or few in the upper axils, small, long-pedicelled, orange, cupuliform. Dorsal sepal ovate, acute, concave, about 10 mm. long and 6.4 mm. wide. Lateral sepals closely similar, lightly oblique. Petals elliptic, acute, apiculate, distinctly smaller than the sepals. Lip erect and subparallel with the column, rhombic-obovate when expanded, subtrilobed with the upper margins plicate on each side above, rounded-obtuse at the apex with a dorsal apicule, cuneate below, about 7.4 mm. long and 6.4 mm. wide above, with a fleshy semilunate callus between the broad, erect-incurved sides. Column short, stout, cylindrical-clavate, about 4.9 mm. long at the back.

Amazonas: Prov. of Bongará, Pomacochas-Vilcaniza, 2,050 m., in wooded ravine, *Sagástegui A-5984* (Type in Herb. Ames No. 090582). Also Ecuador (type of *Ornithidium Jamesonii*).

*Maxillaria Koehleri* Schltr. Fedde Repert. Beih. 9: 103. 1921; Mansf. Fedde Repert. Beih. 57: t. 125, nr. 491. 1929. = *M. laevilabris* Lindl., Benth. Pl. Hartw. 155, in note. 1845.

*Maxillaria leontoglossa* Reichb. f., Bonpl. 3: 67. 1855. = *Xylobium leontoglossum* (Reichb. f.) Rolfe, Gard. Chron. ser. 3, 5: 458. 1889.

*Maxillaria lepidota* Lindl., Ann. & Mag. Nat. Hist. 15: 383. 1845; O. Stapf, Bot. Mag. 150, t. 9065. 1925.

Plant large, apparently caespitose. Pseudobulbs approximate, concealed by leafless sheaths, oblong-cylindric, unifoliate, up to 5 cm. long. Leaf narrowly oblong to linear-ligulate, slenderly petioled; lamina acute at the apex, cuneate below, up to 33.5 cm. long and rarely 3 cm. wide; petiole up to 9 cm. long. Scapes slender, diffuse, up to 20 cm. long, mostly concealed by 6-8 close tubular sheaths. Flowers large, with spreading segments, yellow with reddish tails. Dorsal sepal linear-lanceolate, long-attenuate from a triangular-oblong base, about 8-10 cm. long and 7 mm. wide at the concave base. Lateral sepals similar, oblique, slightly shorter than the dorsal sepal but markedly broader near the base. Petals similar to the lateral sepals but much smaller throughout. Lip much shorter than the other segments, erect, parallel to the column, arcuate-recurved and longitudinally concave with incurved sides in natural position, ovate-oblong and about 1.9 cm. long and 1 cm. broad when expanded, sharply 3-lobed near the apex; lateral lobes obliquely oblong with a short, rounded free apex; mid-lobe small, triangular-ovate, acute, deeply carinate beneath; disc with a linear-oblong, apically rounded callus through the middle of the lower half. Column small, arcuate, about 1 cm. long, produced into a foot; mentum formed by the lateral sepals about 1 cm. long.

Amazonas: Prov. of Chachapoyas, Cerros Calla Calla, 7.5 km. above Leimebamba, on road to Balsas, 2,535 m., *Hutchison & Bennett* 4625. Also Colombia (type) and Ecuador.

*Maxillaria ligulata* Ruiz & Pav. Syst. Veg. Fl. Peruv. et Chil. 1: 222. 1798. = *Odontoglossum ligulatum* (Ruiz & Pav.) Garay, *Caldasia* 8, no. 40: 528. 1962.

*Maxillaria Lindleyana* Schltr. Fedde Repert. Beih. 9: 162, in note. 1921. *M. crocea* Lindl., Bot. Reg. 21: t. 1799. 1835, not Poepp. & Endl., 1836; Cogn., Martius Fl. Bras. 3, pt. 6: 31, t. 21, fig. 1. 1904.

Plant medium-sized, caespitose. Pseudobulbs aggregated, ovoid-cylindric, unifoliate, up to 4 cm. high, concealed by 1 or more pairs of sometimes leaf-bearing sheaths. Leaf petioled; lamina oblong, acute, shortly cuneate below, up to 20.5 cm. long and 2.8 cm. wide; petiole stout, laterally compressed, 2.5 cm. or less long. Scapes short, up to 8.5 cm. high, mostly concealed by several (about 5) loose, tubular sheaths. Flower rather large, yellow or orange-yellow in the type of *M. crocea*. Dorsal sepal linear-lanceolate, acute or acuminate, longitudinally concave, 2-3.4 cm. long and about 6.5 mm. wide. Lateral sepals obliquely oblong-lanceolate, acuminate, a little shorter and broader than the dorsal sepal. Petals obliquely linear-lanceolate, acute or acuminate, a little shorter than both sepals. Lip conspicuously shorter than the sepals, brownish purple, arcuate-recurved and longitudinally concave with erect-incurved sides in natural position, obovate in outline when expanded, simple to obscurely 3-lobed at the broad rounded apex, 8-15 mm. long and 5-12 mm. wide above if spread out; disc below the middle with a linear-oblong, apically rounded callus. Column short, stout, up to 10 mm. high.

Amazonas: Prov. of Chachapoyas, Cerros Calla Calla, 15 km. above Leimebamba, on road to Balsas, 2,950 m., *Hutchison & Bennett* 4658. Also Brazil (type of *M. crocea* Lindl.).

*Maxillaria longibracteata* (Lindl.) Reichb. f. var. *grandiflora* (Lindl.) C. Schweinf., Bot. Mus. Leafl. Harvard Univ. 11: 279. 1945. = *Maxillaria longibracteata* (Lindl.) Reichb. f. var. *luteorubra* (Lindl.) C. Schweinf., Bot. Mus. Leafl. Harvard Univ. 11: 280. 1945. *Maxillaria luteorubra* Reichb. f., Walp. Ann. 6: 539. 1863.

It was noted on a record of the type of *Maxillaria luteorubra* in Reichenbach's handwriting that his *M. luteorubra* was based on *Isochilus grandiflorum* Lindl., as was my later published *M. longibracteata* var. *grandiflora*. This latter combination is thus superfluous and illegitimate. A further synonym based on *Isochilus grandiflorum* Lindl. is *Maxillaria Haenkei* Correll, Bot. Mus. Leafl. Harvard Univ. 10: 13. 1941.

*Maxillaria longifolia* (Barb.-Rodr.) Cogn., Martius Fl. Bras. 3, pt. 6: 33, t. 11. 1904. = *M. discolor* (Lodd. ex Lindl.) Reichb. f., Walp. Ann. 6: 529. 1863. *Dicrypta discolor* Lodd. ex Lindl. Bot. Reg. 25, Misc. 91, no. 145. 1839.



*Maxillaria longipetala* Ruiz & Pav. Syst. Veg. Fl. Peruv. et Chil. 1: 220. 1798. = *Lycaste longipetala* (Ruiz & Pav.) Garay, *Caldasia* 8, no. 40: 524. 1962.

*Maxillaria loretoensis* C. Schweinf., Am. Orch. Soc. Bull. 13: 92, t., 1944. = *M. Parkeri* Hook., Bot. Mag. 54: t. 2729. 1827.

*Maxillaria luteo-alba* Lindl. Orch. Linden. 20, no. 106. 1846.

Plant large, caespitose, epiphytic, up to about 60 cm. high. Pseudobulbs clustered, ovoid-cylindric, laterally compressed, unifoliate, up to 6 cm. long, concealed and surpassed by oblong-lanceolate, complicate sheaths which waste into fibres. Leaf petioled; lamina linear-lanceolate, oblong or oblong-elliptic, acute, cuneate-narrowed below, up to 37 (rarely 50) cm. long and 6.8 cm. wide; petiole stout, conduplicate, up to 11.5 cm. long. Inflorescence basal, short, erect or spreading, up to 14 cm. long, entirely concealed by several (5 or 6) loose tubular sheaths. Flower large, white and pale yellow. Dorsal sepal ligulate, obtuse to subacute, about 4-5 cm. long and 8 mm. wide. Lateral sepals similar, oblique, forming a short but prominent mentum with the column-foot. Petals much shorter than the sepals, similar to the lateral sepals, narrowed to an acute apex. Lip much shorter than the other segments, arcuate-recurved in natural position, rhombic or rhombic-ovate when spread out, about 2-2.5 cm. long, rarely up to 1.8 cm. wide, prominently 3-lobed just above the middle; lateral lobes narrowly oblong-obovate with a short rounded free portion; mid-lobe much larger, ovate or oblong-ovate, obtuse; disc with a median longitudinal central callus below. Column stout, arcuate, about 1 cm. high, with a conspicuous foot.

Cuzco: Prov. of Convención, Quellouno-Chirumbia, 2,000-2,400 m., epiphyte, *Vargas 11361*.—Huánuco: Tingo María, *Bennett 440* (Flower small). Also Costa Rica to Panama, Colombia, Venezuela (type), and Ecuador.

*Maxillaria nitidula* Reichb. f., *Linnaea* 41: 29. 1876.

Plant medium-sized, about 35 cm. tall, occasional terrestrial (according to the collector's notes), caulescent and destitute of pseudobulbs. Stems freely branching above with erect branches, entirely concealed by distichous, closely imbricating, leaf-bearing sheaths which are strongly rugose in the dried specimen. Leaves (persisting only near the apex of the branches) very numerous, distichous, approximate, small, linear-oblong or linear-lanceolate, broadly obtuse and bilobulate at the apex, cuneate-rounded at the sessile base, up to 2.4 cm. long and 5 mm. wide, spreading. Inflorescences occasional, in the upper axils, subequaling the leaves, with 1 or more short sheaths on the peduncle. Flower small. Dorsal sepal oblong-elliptic, rounded at the apex, concave, about 9.5 mm. long and 5.4 mm. wide. Lateral sepals very similar, oblique. Petals similar to the lateral sepals but slightly smaller. Lip erect, subparallel with the column and longitudinally concave in natural position, about 9 mm. long, subtrilobed just above the middle, about 5 mm. wide when the erect sides are expanded; lateral lobes narrowly semiobovate; mid-lobe much larger, ovate-oblong, rounded at the apex; disc through the lower half with a callose thickening extended in front into a prominent rounded callus. Col-

umn slender, arcuate, shorter than the petals, extended into a foot forming a mentum with the lateral sepals.

Amazonas: Prov. of Chachapoyas, Jalca zone, 1-5 km. west of Molinopampa, 2,400-2,450 m., sepals white speckled with pink outside, petals white, lip lacquered red at base, white at the apex, *Wurdack 1372*. Also Ecuador (type).

**Maxillaria notyloglossa** Reichb. f., Bonpl. 2: 16. 1854. *M. divaricata* (Barb.-Rodr.) Cogn., Martius Fl. Bras. 3, pt. 6: 49, t. 4, fig. 1. 1904.

*Maxillaria paniculata* Ruiz & Pav. Syst. Veg. Fl. Peruv. et Chil. 1: 223. 1798. = **Cyrtopodium paniculatum** (Ruiz & Pav.) Garay, Caldasia 8, no. 40. 524. 1962.

**Maxillaria Parkeri** Hook., Bot. Mag. 54: t. 2729. 1827. *M. loretoensis* C. Schweinf., Am. Orch. Soc. Bull. 13: 92, t., 1944.

**Maxillaria parviflora** (Poepp. & Endl.) Garay, Bot. Mus. Leaf. Harvard Univ. 21, No. 9: 258. 1967. *Scaphyglottis parviflora* Poepp. & Endl. Nov. Gen. ac Sp. 1: 58, t. 97. 1836. *Maxillaria purpurea* (Spreng.) Ames & Correll var. *parviflora* (Poepp. & Endl.) C. (Schweinf., Bot. Mus. Leaf. Harvard Univ. 11: 285. 1945.

*Maxillaria pendula* (Poepp. & Endl.) C. Schweinf., Bot. Mus. Leaf. Harvard Univ. 11: 285. 1945. = **M. ramosa** Ruiz & Pav. Syst. Veg. Fl. Peruv. et Chil. 1: 226. 1798, fide L. A. Garay.

**Maxillaria pulla** Linden & Reichb. f., Bonpl. 2: 280. 1854.

Plant medium-sized, epiphytic, up to about 30 cm. high, with a stout rhizome concealed by distichous, imbricating sheaths. Pseudobulbs more or less approximate, ovoid or cylindric-ovoid, unifoliate, about 3 cm. high, concealed and surpassed by conduplicate, acuminate sheaths. Leaf petioled; lamina narrowly elliptic to elliptic-oblong, acute at the apex, shortly cuneate at base, up to 16 cm. long and (rarely) 3 cm. wide; petiole long and slender, 5-10 cm. long. Inflorescences short, with the short peduncle up to 6.5 cm. long, entirely concealed by several loose, tubular sheaths. Flower medium-sized, dull red-brown or maroon, or rose with red stripes. Dorsal sepal oblong-lanceolate, acute, longitudinally concave, about 2.1 cm. long and 6.7 mm. wide when expanded. Lateral sepals closely similar, oblique. Petals oblong-lanceolate, acuminate, oblique. Lip much shorter than the rest of the perianth, about 1.45 cm. long, distinctly 3-lobed just below the middle, ovate-oblong in outline, lightly arcuate-recurved; lateral lobes oblong-semiobovate with a short rounded free apex, erect in natural position; mid-lobe larger, oblong-ovate, acute, convex; disc in the lower half with an oblong, fleshy, sulcate callus through the center. Column short, stout, arcuate, about 6.9 mm. high, with a slightly shorter foot.

Amazonas: Prov. of Chachapoyas, middle eastern Calla Calla slopes, near Kms. 411-418 on Leimebamba-Balsas road, 3,100-3,250 m., low epiphyte, flowers dull red-brown, *Wurdack 1341*; Same locality, 2,900-3,150 m., low epiphyte in moist ravine, flowers dull maroon, *Wurdack 1737*; Prov. of Chachapoyas, south side of Molinopampa-Diosan Pass, 2,700-3,100 m., in moist scrub forest, epiphyte, flowers dull maroon, *Wurdack 1651*. Also Colombia (type).

*Maxillaria purpurea* (Spreng.) Ames & Correll var. *parviflora* (Poepp. & Endl.) C. Schweinf. Bot. Mus. Leaf. Harvard Univ. 11: 285. 1945. = *M. parviflora* (Poepp. & Endl.) Garay, Bot. Mus. Leaf. Harvard Univ. 21, no. 9: 258. 1967.

*Maxillaria quitensis* (Reichb. f.) C. Schweinfurth comb. nov. *Ornithidium quitense* Reichb. f., *Linnaea* 41: 34. 1876.

Plant large, sprawling, about 30 cm. tall, epiphytic or terrestrial. Stems loosely branching, entirely concealed by distichous, imbricating leaf-sheaths which are marcescent in the lower portions. Leaves very numerous, small, spreading, elliptic-oblong to ligulate, unequally bilobed and apiculate at the apex, cuneate-narrowed to a sessile or minutely-petioled base, fleshy-chartaceous, rarely up to 5 cm. long and 1 cm. wide when expanded. Inflorescences short, 1-flowered, numerous. Flowers white to pale yellow. Dorsal sepal narrowly oblong-lanceolate, acute, concave, about 6 mm. or less long and 2 mm. wide. Lateral sepals triangular-lanceolate, lightly oblique, somewhat wider than the dorsal sepal below. Petals distinctly shorter than the sepals, narrowly oblanceolate, acute. Lip markedly shorter than the rest of the perianth, geniculate below the middle, about 4 mm. or less long; basal portion or hypochile ovate-subquadrate, truncate in front, concave with erect-incurved sides; anterior portion or epichile broadly ovate-subquadrate, retuse at the broad apex, flat or convex, markedly larger than the basal portion. Column stout or slender, arcuate, about half as long as the dorsal sepal, with a distinct foot.

Amazonas: Prov. of Bongará, 3 km. north of north end of Lake Pomacocha, on road to Rioja, in "cool ceja, many epiphytes," 2,100-2,200 m., flowers small, pale yellow, *Hutchison & Wright 4065*. Prov. of Chachapoyas, Jalca zone, 1-5 km. west of Molinopampa, 2,400-2,450 m., occasional terrestrial, flowers white with lip cream-color in center, *Wurdack 1373*. Also Ecuador (type of *Ornithidium quitense*).

*Maxillaria ramosa* Ruiz & Pav. Syst. Veg. Fl. Peruv. et Chil. 1: 226. 1798. *Scaphyglottis pendula* Poepp. & Endl. Nov. Gen. ac Sp. 1: 58, t. 98. 1836. *Scaphyglottis Tafallae* Reichb. f., *Linnaea* 22: 855. 1849. *Maxillaria pendula* (Poepp. & Endl.) C. Schweinf., Bot. Mus. Leaf. Harvard Univ. 11: 285. 1945. *Maxillaria Tafallae* (Reichb. f.) C. Schweinf., Bot. Mus. Leaf. Harvard Univ. 11: 288. 1945.

**Maxillaria simplicilabia** C. Schweinfurth sp. nov.

Herba epiphytica, magna, pergracilis. Pseudobulbi anguste cylindracei, approximati, unifoliati. Folium anguste lineare, acutum, inferne in petiolum indistinctum angustatum. Scapus multo brevior, vaginis pluribus tubulatis ornatus. Flos magnus, segmentis patentibus. Sepalum dorsale a basi lanceolata caudato-acuminatum. Sepala lateralia paulo breviora sed latiora, a basi oblique oblonga sensim caudato-acuminata. Petala sepalis lateralibus valde similia sed minora. Labellum tubulari-concavum, simplex, expansum elliptico-oblongum, apice late rotundatum.

Plant epiphytic, large but slender, about 50 cm. or less high. Rhizome abbreviated. Pseudobulbs congested, narrowly cylindric or cauliform in the dried specimen, unifoliate, up to about 5.5 cm. high, more or less concealed by several loose, distichously imbricating, non-leaf-bearing sheaths. Leaf elongate-linear, acute, narrowed below into an indistinct sulcate petiole, up to 37 cm. long and 1 cm. wide. Scape about 17.5 cm. long, bearing about 9-10 sheaths which are short and imbricating at the base and longer, tubular and separated above. Flower large, with spreading cream-colored segments, the lip speckled with purple-brown. Dorsal sepal from a lanceolate concave base caudate-acuminate, about 7.4 cm. long and 7 mm. wide near the base. Lateral sepals form an obliquely oblong base gradually caudate-acuminate, about 7 cm. long, forming a mentum with the column-foot about 9 mm. across. Petals closely similar to the lateral sepals, very oblique, about 4 cm. long and 4 mm. wide near the base. Lip much shorter than the other segments, cream speckled with purple, apparently erect and parallel with the column, longitudinally concave with erect sides in natural position, simple, lightly arcuate-recurved, about 1.8 cm. long in natural position, elliptic-oblong and about 9 mm. wide when expanded, broadly rounded and minutely erose in front, the apex beneath provided with a prominent conical protuberance; disc in the middle with a flattened oblong-ovate callus. Column short, lightly arcuate, about 7 mm. long, produced into a subequally long foot.

This species suggests *Maxillaria lepidota* Lindl., but has an entire lip. It differs from *M. macrura* Reichb. f. in the shape of the pseudobulbs and the lip.

Amazonas: Prov. of Bongará, in high montane rain forest, 2-4 km. west-southwest (245°) of Pomacocha, 2,200-2,400 m. alt., low epiphyte, June 16, 1962, *J. J. Wurdack 862* (type in U. S. Nat. Herb. 2403875).

**Maxillaria spilotantha** Reichb. f., Bonpl. 2: 17 1854.

Plant large, stout, epiphytic. Stems elongate, entirely concealed by closely imbricating, distichous leaf-sheaths, sparingly branched with suberect branches, bearing pseudobulbs at remote intervals. Pseudobulbs oblong-ovoid or ellipsoid, complanate, bifoliate at the apex, up to 7.5 cm. high. Leaves numerous, linear-ligulate, abruptly rounded-obtuse, often bilobulate and apiculate at the apex, somewhat narrowed at the sessile base, up to 20 cm. long, 1-2.2 cm. wide. Inflorescences numerous, axillary, 1-flowered. Flowers pale yellow or bright red-maroon with green at apex (according to Dunsterville). Dorsal sepal linear-

oblong to ovate-oblong, acute with revolute apex, about 12–19 mm. long and 4–7 mm. wide. Lateral sepals very similar but often smaller (especially narrower), slightly oblique. Petals similar to the sepals but distinctly shorter. Lip simple or slightly 3-lobed above the middle, lightly arcuate-recurved, oblong or ovate-oblong, broadly rounded in front, about 12.3–14 mm. long, 4.2–7 mm. wide; disc through the lower half with a central, linear-oblong, fleshy callus. Column short and stout, clavate, arcuate, about half as long as the dorsal sepal.

Junín: Prov. of Tarma, Utcuyacu, 1,900 m., on tree in low forest, *Woytkowski 35355*; Prov. of Tarma, Agua Dulce, *Woytkowski 24* (Univ. Calif. Bot. Gard. 50. 2284). These two numbers are possibly the same collection. Also Venezuela (type), Colombia, and Ecuador.

*Maxillaria trigona* C. Schweinf., Am. Orch. Soc. Bull. 13: 266. t., 1945. = *M. alpestris* Lindl., Benth. Pl. Hartw. 154. 1845.

*Maxillaria variegata* Ruiz & Pav. Syst. Veg. Fl. Peruv. et Chil. 1: 222. 1798. = *Xylobium variegatum* (Ruiz & Pav.) Garay & Dunsterv. Venez. Orch. Illustr. 2: 342, t., 1961.

*Maxillaria verrucifera* C. Schweinf., Bot. Mus. Leaflet. Harvard Univ. 11: 292, t. 19. 1945. = *M. Huebneri* Schltr., Beih. Bot. Centralbl. 42, Abt. 2: 131. 1925.

*Maxillaria witsinioides* Schltr. Fedde Repert. Beih. 7: 175. 1920; Mansf. Fedde Repert. Beih. 57: t. 62, no. 240. 1929.

Plant epiphytic, 20–94 cm. long (often strongly arcuate). Stems slender, entirely concealed by distichous, closely imbricating, spreading leaf-sheaths. Leaves equitant, acute, or obtuse with a minute apicule at the apex, up to 6 cm. long and 7 mm. wide below the middle, erect-spreading, apparently persisting only near the apex of the stem (in specimens seen). Inflorescences axillary, short, 1-flowered, concealed by the leaves, with the peduncle 1.7 cm. or less long, bearing 2 to 4 narrowly linear-lanceolate sheaths which are up to 2 cm. long. Flower green or yellow-green, "very seldom opens" (in Peruvian collections), glabrous with rigid segments. Dorsal sepal narrowly lanceolate, acuminate, 1.6–2.1 cm. long, about 5 mm. wide, longitudinally concave. Lateral sepals similar, oblique, forming a short mentum with the column foot. Petals markedly shorter than the sepals, obliquely elliptic-linear, acute. Lip much shorter than the other segments, simple, narrowly oblong-lanceolate, lightly rhombic, obtuse, gradually long-cuneate at the base, about 1.5 cm. long, 3–4 mm. wide below the middle; disc with a central longitudinal thickening (callose near the apex) extending through the basal third. Column slender, arcuate, clavate, about 7 mm. high at the back, with a short foot.

Huánuco: Tingo María, *Moore T210*.—San Martín: Habitat not cited, *Moore 540, A50*. Also Colombia (type).

*Maxillaria xantholeuca* Schltr. Fedde Repert. Beih. 8: 98. 1921. *M. xantholeuca* Schltr. var. *peruviana* C. Schweinf., Bot. Mus. Leaflet. Harvard Univ. 11: 293. 1945. = *M. alpestris* Lindl., Benth. Pl. Hartw. 154: 1845.

*Ornithidium Jamesonii* Reichb. f., *Linnaea* 41: 35. 1876. = **Maxillaria Jamesonii** (Reichb. f.) Garay & Schweinfurth comb. nov.

*Ornithidium quitense* Reichb. f., *Linnaea* 41: 34. 1876. = **Maxillaria quitensis** (Reichb. f.) C. Schweinfurth comb. nov.

*Cyrtoglottis gracilipes* Schltr. Fedde Repert. Beih. 7: 182. 1920. = **Mormolyca gracilipes** (Schltr.) Garay & Wirth, *Canad. Journ. Bot.* 37: 482. 1959.

*Cyrtoglottis peruviana* C. Schweinf., *Am. Orch. Soc. Bull.* 14: 152, t., 1945. = **Mormolyca Schweinfurthiana** Garay & Wirth, *Canda. Journ. Bot.* 37: 490. 1959, not *Mormolyca peruviana* C. Schweinf. 1944.

*Trigonidium tenue* Lodd. ex Lindl., *Bot. Reg.* 25: Misc. 44, no. 59. 1839. = **T. acuminatum** Batem. ex Lindl., *Bot. Reg.* 24: Misc. 74, no. 136. 1838.

*Trichocentrum albopurpureum* Linden & Reichb. f. ex Reichb. f., *Gard. Chron.* (1866) 219, fig.; Hook. f., *Bot. Mag.* 94: t. 5688. 1868. = **T. albo-coccineum** Linden, *Belg. Hort.* 15: 103. 1865.

Amazonas: Prov. of Bagua, canyon of Río Marañon, between Kms. 247 and 250, on Mesones-Muro highway, "common name is El Parco,"? *Hutchison & Bennett s.n.*

*Trichocentrum longicalcaratum* Rolfe, *Orch. Rev.* 4: 260. 1896. = **T. pulchrum** Poepp. & Endl. *Nov. Gen. ac Sp.* 2: 11, t. 115. 1837-38.

*Trichocentrum maculatum* Lindl. *Orch. Linden.* 24, no. 127. 1846. = **T. pulchrum** Poepp. & Endl. *Nov. Gen. ac Sp.* 2: 11, t. 115. 1837-38.

*Trichocentrum verruciferum* Schltr. Fedde Repert. Beih. 7: 184. 1920. = **T. pulchrum** Poepp. & Endl. *Nov. Gen. ac Sp.* 2: 11, t. 115. 1837-38.

**Plectrophora cultrifolia** (Barb.-Rodr.) Cogn., *Martius Fl. Bras.* 3, pt. 6: 185, t. 35, fig. 1. 1904. *Jansenia cultrifolia* Barb. Rodr., *Vellosoia*, ed. 2, 1: 125. 1891.

Plant small, epiphytic, up to 6.5 cm. tall. Pseudobulb small, suborbicular, strongly ancipitous, unifoliate at the apex, up to 10 mm. long, clasped below on each side by a blade which is similar to but often smaller than the leaves. Leaves small, thickly fleshy, narrowly oblong-ligulate, acute, lightly oblique, up to 7 cm. long and 1 cm. wide. Inflorescence lateral, very short and slender, 1-flowered, with the peduncle 6-7 mm. long. Flower rather small, submembranaceous. Sepals pale greenish cream-color. Dorsal sepal oblong-ovate, acute, about 9-12 mm. long, 3.5-5 mm. wide. Lateral sepals similar, lightly oblique, produced into a slender spur 15-20 mm. long. Petals white, oblong-elliptic, acute or obtuse, about

as long as the sepals but noticeably broader. Lip about one-half longer than the sepals, simple, suborbicular or obovate-suborbicular, lightly emarginate in front, cuneate below with a minutely bisaccate base, white lined with yellow, 14–18 mm. long, up to 20 mm. wide. Column abbreviated, 3–4 mm. long, its base with 2 thin ridges extending into the lip.

Loreto: Habitat not cited, at sea level, in deep shade, *Moore 270*. Also Brazil (Amazonas, type of *Jansenia cultrifolia*) and Venezuela.

**Diadenium Bennettii** Garay, *Orch. Rev.* 75: 414, fig. 184. 1967.

Plant epiphytic, caespitose, up to 25 cm. tall. Pseudobulbs approximate, ovoid, unifoliate, about 5 cm. high, surrounded by 2 pairs of blades which are similar to but smaller than the leaves. Leaves oblong-lanceolate or elliptic-oblong, acute, channelled, coriaceous, up to 12 cm. long, 2.5 cm. wide. Inflorescence lateral, surpassing the leaves, with the elongate glabrous peduncle provided with 4 short, close, remote sheaths; raceme short, densely several- (about 9-) flowered. Flowers rather small and fleshy, green suffused with purple and a dark purple lip. Dorsal sepal oblong-obovate, obtuse, 7 mm. long, 2.5 mm. wide. Lateral sepals oblong-obovate, connate nearly to the apex which is thus bifid, the lamina a little longer and broader than the dorsal sepal. Petals obliquely ovate-oblong, obtuse, shorter than the sepals, long-decurrent on the elongated column-foot. Lip with an elongate claw adnate to the face of the column; lamina abruptly reflexed, ovate-quadrate, deeply excised with rounded lobes, 7 mm. long and 6.5 mm. wide at the base; disc with a transverse pulvinate callus. Column small, produced into a foot which is 5 mm. long.

Junín: Chanchamayo, La Merced, 1,000 m., *von Bismarck s.n.* (cultivated in Lima, Peru, by Mr. Dave Bennett, Jr.).

**Ionopsis satyrioides** (Sw.) Reichb. f., *Walp. Ann.* 6: 683. 1863.

*Epidendrum satyrioides* Sw. *Prodr. Veg. Ind. Occ.* 123. 1788.

Plant small, epiphytic, caespitose, rarely up to 30 cm. high. Pseudobulb abbreviated, unifoliate, concealed by several distichous, imbricating leaves. Leaves terete or subterete, sessile, acute, up to 14 cm. long and 4 mm. wide. Inflorescence lateral, commonly more or less surpassing the erect-spreading leaves, simple or loosely few-branched with remote, erect-spreading branches. Flowers small, white creamy white, pale yellow or rose. Sepals shortly connate at base. Dorsal sepal (free portion) ovate-lanceolate, acute, about 4.5–5.5 mm. long and 2.3 mm. wide. Lateral sepals similar but a little longer, acute or acuminate. Petals oblong-elliptic, acute or obtuse, as long as the lateral sepals. Lip from a short terete claw abruptly dilated into a cuneate or oblong-cuneate lamina, truncate or lightly retuse in front with a small central apicule, about 6.5–8 mm. long and 2.5–5 mm. wide above, with 2 lamellate calli below, white with two purple lines. Column minute.

Cuzco: Prov. of Paucartambo, Kosñipata, 950 m., epiphytic, *Vargas 10238*.—Loreto: Habitat not cited, *Moore A 120, 700*. Also the West Indies (Hispaniola, type of *Epidendrum satyrioides*), Colombia, Venezuela, British Guiana, Brazil, and Ecuador.

**Rodriguezia caloplectron** Reichb. f., Gard. Chron. n. ser. 19: 368. 1883.

Plant large, with a creeping rhizome. Pseudobulbs oblong-ligulate, ancipitous, unifoliate, about 4 cm. long, concealed at base on each side by 3 imbricating, leaf-bearing sheaths. Leaf ligulate-oblong, acute, about 23 cm. long and 2.2 cm. wide, coriaceous. Inflorescences lateral, shorter than the leaves, loosely racemose above, diffuse to pendent, up to 12-flowered. Flower fairly large, variable in color, the type being yellowish white with green streaks. Dorsal sepal "oblong, obtuse or emarginate" or obovate-oblong and acute, about 2.6 cm. long and 1 cm. wide, somewhat conduplicate in specimen seen. Lateral sepals linear-oblong, entirely connate, forming tubular hamate spur about 2.5 cm. long enclosing the solid spur of the lip. Petals obliquely oblong-obovate, long-cuneate below, obtuse or acute, about 3 cm. long. Lip much exceeding the other segments, obovate-oblong, retuse at the broad rounded apex, indented on each side near the front, about 3.7 cm. long and 1.9 cm. wide above, long-narrowed and tubular below, produced into a slender spur about 7 mm. long; disc with a pair of low angulate keels near the center. Column slender, straight, clavate, nearly 2 cm. long, with a pair of porrect, oblong, apically dentate or rounded wings.

Loreto: Iquitos, "very rare, flowers lavender-pink, salmon, yellow, cream-white, with purple flecks," *Moore 8060*. Also Colombia (type).

**Neokoehleria Rauhii** Senghas, Die Orchidee 19: 125. figs. 1968.

Plant small, epiphytic. Pseudobulbs densely aggregated, ellipsoid, unifoliate, up to 12 mm. tall, bright green when young becoming light purple, concealed by 2 sheaths. Leaf narrowly linear, acuminate, petiolate-narrowed at base, channelled, fleshy, up to 16 cm. long, 5 mm. wide, purple becoming green. Inflorescence lateral, almost as long as the leaf, simple or branched, up to 30-flowered, with the rachis 4-5 cm. long. Flowers small, little-open, red-violet. Dorsal sepal oblong-elliptic, rounded at the subcucullate apex, 6 mm. long, 2 mm. wide. Lateral sepals connate into a broadly ovate, bidentate lamina about half as long as the dorsal sepal, produced into a stout, lightly emarginate spur which is about equal to the lamina. Petals very obliquely and broadly obovate, slightly shorter than the dorsal sepal, but distinctly wider, minutely apiculate at the rounded apex. Lip ligulate-cuneate, rounded at the apex, with the lateral margins above the middle irregularly lacerate-fimbriate, about 5 mm. long and 1.5 mm. wide, produced at base into a pair of linear-clavate spurs about 1.5 mm. long; disc with 2 high, erect keels. Column short, slender, retrorsely curved, 4.5-5 mm. high.

Junín: Near San Ramón, about 2,000 m., in mountain woods, *Rauh 21098*.

**Scelochilus serrilabius** C. Schweinf. sp. nov.

Herba mediocris, rhizomatosa. Pseudobulbi plusminusve approximati, unifoliati, in sicco anguste cylindranei. Folium oblongo-ellipticum, sessile vel subsessile, acutum. Inflorescentia lateralis, folium multo superans, saepissime laxe paniculata cum ramis paucis stricte adscendentibus, laxe multifloris. Flores parvi, lateraliter visi campanulati. Sepalum dorsale elliptico-ovatum, acutum, valde



concavum. Sepala lateralialia in laminam breviter bidentatam connata, in calcar crassum, porrectum extensa. Petala ovali-ovata, apice rotundata. Labellum in calcaria duo crassa productum; lamina tubulari-concava, expansa elliptico-oblonga, prope apicem utrinque leviter constricta, lateribus lacerato-serratis. Columna crassa, recta.

Plant medium-sized, up to 26 cm. high, with a creeping rhizome. Roots fibrous, glabrous, whitish, rather stout. Pseudobulbs more or less approximate, slenderly cylindrical and striate in the dried specimen, unifoliate, up to 4.5 cm. long. Leaf oblong-elliptic (rarely elliptic-lanceolate), sessile or subsessile, acute, about 15 cm. long, 2-3 cm. wide across the middle. Inflorescences solitary at the base of each pseudobulb, suberect to arcuate, loosely panicleate above with one or two short, strictly ascending lateral branches below (rarely racemose); peduncle 9-12 cm. long, with three distant, close, inconspicuous, tubular sheaths; rachis of panicle 13-15 cm. long, loosely many-flowered. Floral bracts ovate-lanceolate to linear-lanceolate, acuminate, up to 1 cm. long. Flowers small, campanulate as seen from the side. Dorsal sepal elliptic-ovate, acute or apiculate, strongly concave, about 5.2 mm. long and 3.4 mm. wide when expanded. Lateral sepals connate into a sharply bidentate lamina with small overlapping apical lobules, extended below to form a stout, porrect spur, up to 10.9 mm. long from the apex to the base of the spur. Petals oval-ovate, broadly rounded with an irregular apex, about 7 mm. long and 4.5 mm. wide. Lip narrow, tubular-concave, extended into a pair of short stout spurs, about 10 mm. long including the spurs; lamina when expanded elliptic-oblong in outline, about 6.8 mm. long, with the sides (except at the base and apex) lacerate-serrate, lightly contracted on each side above into a small rounded-ovate lobule; disc at base in the center with a short keel extending from the column; spurs about 2.9 mm. long. Column stout, straight, about 4 mm. high, with the sides of the stigmatic orifice rotund-dilated.

This species seems to be somewhat allied to *Scelochilus pichinchae* Schltr., but has much larger pseudobulbs and leaves, elongate, many-flowered scapes, rounded (not acute) petals, and dissimilar lip-characters.

Cuzco: Prov. of Urubamba, Machu-Picchu (near bridge), 2,020 m. altitude, in humus, October 20, 1960, *C. Vargas C. 13506*. (Type in Herb. Ames No. 000583.)

**Rusbyella pusilla** (C. Schweinf.) Garay, *Caldasia* 10, no. 47: 237. 1968. *Buesiella pusilla* C. Schweinf., Bot. Mus. Leaflet. Harvard Univ. 15: 153, t. 48. 1952.

**Helcia sanguinolenta** Lindl., Bot. Reg. 31: Misc. 18. 1845. Lindl. & Paxt., Paxton's Flow. Gard. 2: 97, fig. 182. 1851-52.

Plant epiphytic, medium-sized. Pseudobulbs ovate to ovate-oblong, subterete, about 4.5 cm. long, unifoliate. Leaf shortly petioled; lamina elliptic-oblong, acute or obtuse, cuneate below, 7-15 cm. long, about 2.5 cm. wide; petiole indistinct, channelled, about 1 cm. long. Inflorescence lateral, shorter than the leaf; peduncle 1-flowered, with 2 distant bracts. Flower relatively large. Sepals

and petals olive spotted with brownish red, lip white striped with blood-red. Dorsal sepal oblong-elliptic or oblong-lanceolate, acute, about 2.4 cm. long and 1 cm. wide. Lateral sepals similar, a little narrower. Petals somewhat smaller than the sepals, slightly broader above. Lip nearly as long as the other segments but much broader, oblong-obovate in outline, bilobed at the broad apex, 3-lobed at the base, about 2.3 cm. long and 1.8 cm. wide near the front; midlobe obovate, constricted at the middle of each side, with undulate margins; lateral lobes much smaller, flattened-triangular, erect, surrounding a hollow hairy pit. Column short, the clinandrium surrounded by a lacerate border.

Between Cajamarca and La Libertad, Huaranchal, about 70 km. south of Cajamarca, *Steumpfle s.n.*—Lambayeque, Hda. Taulis, about 100 km. east of Chiclayo, *von Bismarck s.n.*—Piura, Canchaque, about 100 km. east of Piura, *Steumpfle s.n.* Also Ecuador (type).

The above description was compiled from the illustration cited above and from a photograph of the type.

**Trichopilia laxa** (Lindl.) Reichb. f., Hamb. Gartenz. 14: 229. 1858. *Pilumna laxa* Lindl., Bot. Reg. 30: Misc. 74. 1844.

Plant large, epiphytic, up to 42 cm. high. Pseudobulbs ovate-oblong to oblong-cylindric, strongly complanate, unifoliate, approximate, up to 12 cm. long. Leaf usually oblong to ligulate (rarely oblong-elliptic) sessile, acute, cuneate at base, up to 32.7 cm. long, rarely up to 5.2 cm. wide, chartaceous. Inflorescence lateral, lax or pendent, loosely racemose, up to 7-flowered, much shorter than the pseudobulb together with the leaf, up to 26 cm. long; peduncle up to 6 cm. long. Floral bracts conspicuous, ovate-elliptic, acute, strongly concave, about 2 cm. long. Sepals and petals pink-maroon or pale green with pink flush, lip white with greenish white tint. Dorsal sepal lanceolate-linear or linear-elliptic, acute, 25–36 mm. long, about 5 mm. wide. Lateral sepals similar but smaller throughout. Petals very similar to the dorsal sepal but shorter, lightly oblique. Lip distinctly shorter than the other segments, adnate to the column above its base, about 15–26 mm. long, 8–14 mm. wide above, from a long-cuneate base dilated into a subquadrate lamina which is truncate to lightly retuse in front and more or less constricted on each side; disc with a low central keel in the middle. Column slender, clavate about half as long as the lip.

Junín: Chanchamayo, pseudobulbs 5 cm. long, leaf 30–35 cm. long, 5 cm. wide, flowers wavy, whitish, erect on rachis, *Steumpfle 467*. Also Colombia (type) and Venezuela.

**Cochlioda** × **Floryi** Rolfe, Orch. Rev. 19: 144. 1911. (*C. Noezliana* × *C. rosea*.)

Amazonas: Prov. of Chachapoyas, Cerros Calla Calla, 19 km. above Leimebamba, on road to Balsas, 3,100 m., terrestrial in mossy boggy area, flowers orange-red, *Hutchison & Wright 6935*. Peru: Habitat not cited (type).

**Odontoglossum blandum** Reichb. f., Gard. Chron. (1870) 1342. Batem. Monog. Odontog. t. 28. 1874.

Plant rather small for the genus, about 28 cm. or less high. Pseudobulbs approximate, ovoid or ellipsoid, compressed, 1- to 2-leaved at the apex, about 5 cm. or less high, clasped below by 2 or 3 pairs of leaf-bearing conduplicate sheaths. Leaves linear-lanceolate, acute, narrowed below to an indistinct conduplicate petiole, up to 25.5 cm. long and about 1 cm. wide. Inflorescence lateral, about equaling or slightly exceeding the leaves, arcuate, racemose above with about 6-12 subdensely arranged flowers. Perianth segments spreading, white or creamy-white spotted with reddish purple. Dorsal sepal lanceolate, acuminate, about 20 mm. long and 5.5 mm. wide. Lateral sepals similar but slightly longer, oblique. Petals ovate-lanceolate, long-acuminate, slightly shorter and broader than the sepals. Lip somewhat shorter than the sepals and petals, unguiculate; claw short, erect, conduplicate, subparallel with the column; lamina deflexed, much larger, oblong-ovate, acute, mucronate, crisped and denticulate on the margins, about 15 mm. long and 8 mm. wide; disc at base with a pair of fleshy bilobed horns of which the anterior lobe is larger. Column short, straight, stout, about 6.8 mm. long, at the apex with a pair of narrow, deeply lacerate wings.

Cuzco: Prov. of Calca, Manto, at Km. 84, 2,100 m., epiphytic, *Vargas 15638*. Also Colombia (type).

**Odontoglossum cochleatum** (Lindl.) Reichb. f., Gard. Chron. n. ser. 26: 70, 1886. *Oncidium cochleatum* Lindl. Sert. Orch. sub t. 25. 1838. *Odontoglossum crocatum* Linden & Reichb. f., Gard. Chron. (1867) 404. *Odontoglossum fractiflexum* Kränzl., Engler. Bot. Jahrb. 37: 390. 1906.

**Odontoglossum crispum** Lindl., Ann. & Mag. Nat. Hist. 15: 256. 1845.

Plant large, epiphytic, showy, very variable, up to about 9 dm. tall. Pseudobulbs approximate, ovoid, compressed, up to 7 cm. high, 1- to 2-leaved at the apex. Leaves linear-lanceolate, acute, gradually narrowed to an indistinctly petioled channelled base, up to 31 cm. long and about 2 cm. wide. Inflorescence lateral, more or less surpassing the leaves, erect to arcuate, racemose or paniculate, loosely few- to many-flowered. Flowers rather large, 5-8 cm. across, variable, yellow with a purple-spotted center or white spotted with rose and a yellow spot near base of lip. Dorsal sepal ovate-lanceolate, acute or acuminate, more or less crisped-undulate, about 3.5-5 cm. long, up to 2 cm. wide. Lateral sepals very similar, lightly oblique. Petals ovate, acute or acuminate, slightly shorter but noticeably broader than the sepals, with margins commonly more crisped-undulate or dentate. Lip noticeably shorter than the other segments, oblong-ovate, acute or acuminate, deflexed above, cuneate at the base which is parallel with the column, dentate and crisped; disc with a pair of crests which are prolonged into narrow teeth. Column short, arcuate, about one-third as long as the dorsal sepal, above with a pair of short, broad, dentate wings.

Peru: Habitat not cited, *Ruíz & Pavón s.n.* Also Colombia (type).

*Odontoglossum fractiflexum* Kränzl., Engler Bot. Jahrb. 37: 390. 1906. = *O. cochleatum* (Lindl.) Reichb. f., Gard. Chron. n. ser. 26: 70. 1886.

*Odontoglossum graminifolium* C. Schweinf., Am. Orch. Soc. Bull. 15: 30, t., 1946. = *O. longifolium* Lindl., Benth. Pl. Hartw. 152. 1844.

This concept was described from an immature specimen with a simple raceme. However, the flowers have a lip which is identical with that of *O. longifolium*.

*Odontoglossum Hrubyanum* Reichb. f., Gard. Chron. ser. 3, 4: 234. 1888. = *Odontoglossum cruentum* Reichb. f. Xen. Orch. 2: 174, t. 174, figs. I, 1-2. 1873.

The type of *Odontoglossum cruentum* was illustrated and described from a sketch and a single dried flower sent by Mr. Wallis. In this drawing the lip is shown as rhombic-ovate rather than pandurate as noted in *O. Hrubyanum*, but otherwise both concepts appear to be identical. *O. cruentum* came from Ecuador. The identity of the species was corroborated by Dr. L. A. Garay in his monographic study of the genus.

*Odontoglossum Kegeljani* Morr., Belg. Hort. 27: 212, t. 10. 1877. *Odontoglossum polyxanthum* Reichb. f., Flor. Mag. n. ser. 20, t. 453. 1881.

Plant large, showy. Pseudobulbs approximate, ovoid, up to 7 cm. high, bifoliate at the apex, clasped at the base by 2 to 4 distichous leaves. Leaves sessile, elliptic-oblong, acute or acuminate, conduplicate at base, up to 20 cm. long and about 3 cm. wide. Inflorescence lateral, simple, straight, or flexuous above, up to 40 cm. high, loosely 7- to 8-flowered above. Flowers large, with spreading segments, about 6.5 cm. across. Sepals elliptic, acuminate, about 3.5 cm. long and 1.2 cm. wide, yellow with a few large brown spots, the lateral sepals slightly oblique. Petals very similar, clear yellow with a brown spot at base. Lip red-brown with white, finely fringed margins and a large white spot at base, somewhat shorter than the other segments; claw (hypochile) narrow, erect and parallel with the column; epichile much larger, from an abrupt base oblong-ovate, acuminate; disc with a central crest consisting of 2 pairs of spines of which the lateral pair is weak and spreading and the central pair stouter and porrect. Column arcuate, with a pair of abrupt, spreading, subquadrate, truncate wings above.

Peru: Huancabamba, *Kreuser s.n.* Also Ecuador? (type). The original description of *O. Kegeljani* was made from a cultivated specimen, but *O. polyxanthum* is Ecuadorian.

*Odontoglossum ligulatum* (Ruíz & Pav.) Garay, Caldasia 8, no. 40: 528. 1962. *Maxillaria ligulata* Ruíz & Pav. Syst. Veg. Fl.

Peruv. et Chil. 1: 222. 1798. *Odontoglossum myrianthum* Reichb. f. Xen. Orch. 1: 189, t. 68, figs. II, 4-5, 1856. *Cyrtochilum myrianthum* Kränzl., Pflanzenr. IV. 50 (Heft 80): 82. 1922.

Eastern slopes of the Andes. Habitat not cited, *Steumpfle* 967-1. In this collection the pseudobulbs are "roundish, aggregate, 2.5 cm. in diameter leaves 20-25 cm. long, 2 cm. wide. Sepals and petals dark reddish brown, lip whitish yellow." The type of *Odontoglossum myrianthum* was designated as *Ophrys tricolor*. Palca.

**Odontoglossum longifolium** Lindl., Benth. Pl. Hartw. 152. 1844. *Odontoglossum graminifolium* C. Schweinf., Am. Orch. Soc. Bull. 15: 30, t., 1946.

**Odontoglossum longipes** Reichb. f. & Warse., Bonpl. 2: 100. 1854. This species is extremely close to *O. longifolium* Lindl., its flowers being nearly identical with those of that species, but the flowering scape is much stouter and the flowers densely arranged, rather than very loose. Possibly it may be found to be an ecological form of *O. longifolium*.

*Odontoglossum myrianthum* Reichb. f., Xen. Orch. 1: 189, t. 68, figs. II, 4-5. 1856. = **Odontoglossum ligulatum** (Ruíz & Pav.). Garay, Caldasia 8, no. 40: 528. 1962. *Maxillaria ligulata* Ruíz & Pav. Syst. Veg. Fl. Peruv. et Chil. 1: 222. 1798. *Cyrtochilum myrianthum* Kränzl., Engler Pflanzenr. IV 50 (Heft 80) 82. 1922.

*Odontoglossum polyxanthum* Reichb. f., Flor. Mag. n. ser. 20, t. 453. 1881. = **O. Kegeljani** Morr., Belg. Hortie. 27: 212, t. 10. 1877.

**Odontoglossum ringens** Reichb. f. Xen. Orch. 2: 150, t. 159. 1870; Reichb. f., Gard. Chron. (1872) 1035. Saund. Refug. Bot. 2: t. 99. 1878. Also Bolivia.

**Solenidium peruvianum** Schltr. Fedde Repert. Beih. 9: 113. 1921.

Amazonas: Prov. of Chachapoyas, Cerros Calla Calla, 15 kms. above Leimebamba, on road to Balsas, 2,950 m., sepals and petals chartreuse with brownish tips, lip yellow or white with orange callus, *Hutchison & Bennett* 4663.

*Oncidium cajamarcae* Schltr. Fedde Repert. Beih. 9: 113. 1921. = **Oncidium foveatum** Lindl. Fol. Orch. *Oncidium* 52, no. 183. 1855. This latter concept was mistakenly referred, as a synonym, to *O. ar-*

*millare* Lindl., but it differs from that species in having much larger flowers with dissimilar sepals and petals, as well as details of the lip.

*Oncidium cochleatum* Lindl. Sert. Orch. sub t. 25. 1838. = **Odonoglossum cochleatum** (Lindl.) Reichb. f., Gard. Chron. n. ser. 26: 70. 1886.

**Oncidium foveatum** Lindl. Fol. Orch. *Oncidium* 52, no. 183. 1855. *O. cajamarcae* Schltr. Fedde Repert. Beih. 9: 113. 1921.

**Oncidium Lanceanum** Lindl., Trans. Hort. Soc. London n. ser. 2: 100, t. 5. 1842.

Plant rather large and showy. Pseudobulbs minute and inconspicuous, unifoliate, approximate on the fleshy rhizome. Leaf elliptic or elliptic-oblong, acute or obtuse, sessile, fleshy, irregularly marked with brown spots, up to 48 cm. long and 12 cm. wide. Inflorescence lateral, more or less surpassing the leaf, commonly racemose and rarely paniculate, loosely few- to several-flowered. Flowers large and showy, fragrant, about 3.5–6 cm. across when spread out. Sepals and petals yellow or yellow-green closely spotted with chocolate. Dorsal sepal elliptic or oval, acute or obtuse, about 2.5–3 cm. long, up to 1.7 cm. wide. Lateral sepals similar but a little longer and narrower, slightly oblique. Petals obliquely elliptic, as long as the dorsal sepal and as wide as the lateral sepals. Lip about as long as the other segments, deeply 3-lobed near the base, rose to deep purple below, pandurate in outline; lateral lobes relatively small, triangular-rounded; mid-lobe much larger, from a cuneate base more or less abruptly dilated into a transversely oblong-oval, broadly rounded or lightly retuse lamina; disc at base with a 3-lobed callus of which the middle lobe is much the largest, flattened and protuberant. Column short and stout, about 7 mm. long, dilated in front below, with a pair of rounded wings above.

Huánuco: Habitat not cited, at sea level, rare, *Moore s.n.* Also Trinidad, Venezuela, the Guianas (Surinam, type), and Brazil.

**Oncidium Reichenbachii** Lindl. Fol. Orch. *Oncidium* 49, no. 172. 1855; Dunsterv. & Garay, Venez. Orch. Illustr. 2: 258, t., 1961.

Plant tall. Pseudobulbs approximate, oblong-ovoid, unifoliate, up to 10 cm. high, clasped below by a pair of leaf-bearing sheaths. Leaves lorate, acute, sessile, up to 40 cm. long, 3.5–4.5 cm. wide. Inflorescence lateral, far surpassing the leaves, up to 15 dm. or more long, arcuate, loosely paniculate with branches 4–6 cm. apart; branches (rarely branched) divaricate and recurved, 2- to 10-flowered, with a fractiflex rachis. Flowers small, clear yellow with brown markings. Segments wide-spreading. Dorsal sepal oblanceolate, acute or acuminate, 11–13 mm. long, 3–4 mm. wide. Lateral sepals similar but a little longer, oblique. Petals oblong or obovate-oblong, a little shorter and broader than the sepals. Lip about as long as the sepals but much broader, pandurate or three-lobed; basal half triangular-ovate, abruptly dilated into a transversely oval, lightly retuse lamina which is broader than the basal part; disc at base with an oblong, laterally denticulate callus which terminates in 3 narrow complanate teeth. Column short and stout, below with a pair of porrect rounded plates and above with a pair of semiovate, acuminate wings.

Amazonas: Prov. of Chachapoyas, vicinity of Leimebamba, upstream along creek flowing through the edge of town into Río Utcubamba, 2,250 m., *Hutchison & Wright 4899* (Column wings short). Also Colombia (type) and Venezuela.

***Leochilus carinatus*** (Knowl. & Westc.) Lindl., Bot. Reg. 28: Misc. 23. 1842. *Oncidium carinatum* Knowl. & Westc. Floral Cab. 2: 31. 1838.

Plant medium-sized to large, epiphytic. Pseudobulbs clustered, suborbicular to ovoid, strongly complanate, unifoliate, up to 2.5 cm. long, partially concealed by distichous leaf-bearing sheaths. Leaves elliptic to elliptic-oblong, acute to obtuse, rarely up to 15 cm. long and 3.8 cm. wide, sessile. Inflorescence lateral, variable, much surpassing the leaves, slender, up to 52 cm. or more long, racemose or loosely paniculate with distant branches, few- to many-flowered. Flowers small, with spreading segments. Sepals cream-olive to greenish-brown; petals gray, white or green with brown lines or margins; lip white or greenish yellow. Sepals concave, dorsally carinate. Dorsal sepal elliptic, acute, up to 9 mm. long and 5 mm. wide. Lateral sepals very similar but narrower, oblique. Petals oblong-ovate, subacute or obtuse, slightly shorter and much narrower than the dorsal sepal. Lip distinctly surpassing the sepals, ovate-oblong to pandurate, emarginate at the broad apex, cuneate at base, up to 11 mm. long and 5-5.8 mm. wide; disc with a group of recurved papillae at the base. Column short, about 4 mm. or less high, with a pair of porrect oblong or triangular-oblong wings in the middle.

Junín: Paucartambo Valley, about 1,500 m., at the lower edge of mountain forest, *Rauh s.n.* Also Mexico (type of *Oncidium carinatum*). The first occurrence of this Mexican species was recorded in Die Orchidee 14: 173-178, figs., 1963.

*Sigmatostalix peruviana* Rolfe, Kew Bull. (1910) 371. = ***Sigmatostalix graminea*** (Poepp. & Endl.) Reichb. f., Bot. Zeit. 10: 769. 1852.

***Lockhartia longifolia*** (Lindl.) Schltr. Fedde Repert. Beih. 6: 99. 1919. *Fernandezia longifolia* Lindl. Orch. Linden. 13, no. 70. 1846.

Plant medium-sized, epiphytic, up to 50 cm. tall. Stems aggregated, entirely concealed by very numerous leaves. Leaves distichous, equitant, imbricating, erect-spreading, triangular-lanceolate, acute, up to 3.3 cm. long (measured along the lower margins) and about 5 mm. wide at the base. Inflorescences 1 or 2, axillary, subapical, abbreviated, racemose, few-flowered. Flowers creamy-yellow with red-brown or maroon at base of lip. Dorsal sepal ovate or oblong-ovate, acute or apiculate, about 8 mm. long and 4 mm. wide. Lateral sepals very similar, slightly oblique. Petals obovate or oblong-obovate, broadly rounded at the apex, a little longer than the sepals but markedly broader. Lip as long as the petals but much broader than the other segments, ovate-suborbicular, retuse, with a fold on each side, about 9 mm. long and 13 mm. wide; disc in the center with a transverse, lobulate, glandular callus. Column abbreviated, rhombic, sharply 3-toothed at the apex.

Amazonas: Prov. of Bongará, Campomiento Ingenio, Km. 300, east of Olmos, on Río Utcubamba, 1,250 m., *Hutchison & Wright 6849*. Also Venezuela (type of *Fernandezia longifolia*).

*Ornithocephalus avicula* Reichb. f. & Wulsch. ex Reichb. f., Walp. Ann. 6: 495. 1863. = *Ornithocephalus Kruegeri* Reichb. f., Walp Ann. 6: 495. 1863. Also Trinidad (type) and Venezuela.

*Notylia conduplicans* C. Schweinf., Bot. Mus. Leaflet. Harvard Univ. 12: 200, t. 25. 1946. = *Notylia Amesii* Smith & Harris, Contrib. Gray Herb. Harvard Univ. 117: 40, figs. H-K, 1937.

***Telipogon andicola*** Reichb. f., Bonpl. 3: 239. 1855; Xen. Orch. 1: 230, t. 97, fig. II. 1858.

Plant small but with large flowers, epiphytic, about 7 cm. or less tall. Stem abbreviated with large adventitious roots. Leaves few (up to 10), aggregated, oblanceolate or cuneate-ligulate, acute, sessile, up to 5 cm. long and 10 mm. broad, chartaceous. Inflorescence short, subequaling the leaves, with the peduncle ancapitous; raceme abbreviated, 2- to 5-flowered. Bracts triangular, carinate. Pedicel and ovary tripterous. Perianth parts wide-spreading, with flowers about 3 cm. across, pale yellow with purple veins. Sepals oblong-ovate, acute, about 9-14 mm. long and 4 mm. wide, wing-carinate. Petals much larger, cuneate-obovate, subacute, 6- to 7-nerved, about 10-15 mm. long and nearly as wide. Lip subequal, broadly obovate, broadly rounded to subacute at the apex, about 13-16 mm. wide, 9- to 11-nerved. Column abbreviated, very hispid, dark violet.

Lambayeque: Prov. of Chiclayo, Hacienda Taulis, Río Taulis, 2,950 m., upstream two hours by horse and one-half hour by foot from La Playa, *Hutchison & von Bismarck 6474*. Also Ecuador (type).

***Trichoceros Tupaipi*** Reichb. f., Linnaea 41: 33. 1876.

Piura: Prov. of Huancabamba, 12 km. above Huancabamba, on road to Canchaque, 2,600 m., abundant around bases of *Borzicactus Humboldtii*, *Hutchison & Wright 6628*. In this specimen the base of the lip has a short keel in center.

***Stellilabium pogonostalix*** (Reichb. f.) Garay & Dunsterv. Venez. Orch. Illustr. 2: 336, t., 1961. *Telipogon pogonostalix* Reichb. f. Linnaea 41: 72. 1876. *Sodirolella ecuadorensis* Schltr. Fedde Rept. Beih. 8: 108. 1921. *Cordanthera andina* L. Wms., Lilloa 6: 244. 1941.

Plant small, epiphytic, about 11 cm. or less high. Stems abbreviated, caespitose, entirely concealed by imbricating leaf-sheaths. Leaves several, aggregated, distichous, elliptic-linear or linear-oblanceolate, acute, sessile, up to 30 mm. long and 5 mm. wide. Inflorescence terminal, filiform, much surpassing the leaves,



loosely racemose and few- to several-flowered above, suberect to arcuate, up to 11.5 cm. long. Flowers very small, yellow-green, with spreading segments. Dorsal sepal ovate to ovate-lanceolate, acute, about 2.5–4 mm. long and 1.3–2 mm. wide. Lateral sepals very similar. Petals oblanceolate, acute, as long as the sepals but narrower. Lip ovate or oblong-ovate, 3-lobed at base, 2.5–5 mm. long, 2.2–3 mm. wide across the lateral lobes; lateral lobes small to minute, dentiform to oblong-lanceolate; mid-lobe much larger, ovate-oblong, obtuse or subacute. Column minute, with a cluster of apically stellate hairs on either side.

Cuzco: Prov. of Urubamba, Machu-Picchu, Museo de Sitio, 2,020 m., *Vargas 17443*. Also Colombia (type of *Cordanthera andina*), Venezuela, and Ecuador (types of *Telipogon pogonostalix* and *Sodirolella ecuadorensis*). This is a highly variable species.

### **Dichaea trulla** Reichb. f. Beitr. Orch. Central-Am. 104. 1866.

Plant large, epiphytic. Stems aggregated, up to 45 cm. long, entirely concealed by distichously imbricating leaf-sheaths. Leaves numerous, linear to linear-lanceolate, acute, sessile, spreading, up to 9.5 (rarely 13) cm. long and 7 mm. wide, deciduous in the lower part of the stem. Inflorescences axillary, short, 1-flowered, with peduncle about 2.7 cm. or less long. Flowers small, fleshy. Sepals and petals yellow-green, lip light purple (rarely all segments white). Dorsal sepal ovate, acute, about 8.2 mm. long and 4.2 mm. wide. Lateral sepals oblong-ovate, subacute, slightly longer and narrower than the dorsal sepal. Petals oblong-elliptic, somewhat shorter and narrower than the sepals. Lip obovate in outline, from a broadly cuneate lower half abruptly dilated into a semilunate-ovate anterior half, acute at the rounded apex, about 7 mm. long and wide. Column minute.

Loreto: Vicinity of Iquitos, 100 m., *Klug 10100* (Flower poor). Also Nicaragua (type), Costa Rica, Panama (as *D. Powellii*), Venezuela, Colombia, British Guiana, Brazil, and perhaps Ecuador.

### **Pachyphyllum falcifolium** Reichb. f., *Linnaea* 41: 32. 1876.

Plant small to medium-sized, about 15–25 cm. or more high, epiphytic. Stems slender, arcuate or flexuous, sparingly branched above, 34 cm. or less long, entirely concealed by very numerous distichous, imbricating, leaf-bearing sheaths which are longitudinally and often transversely rugose, ciliate on the margin. Leaves numerous, distichous, linear, falcate, conduplicate, abruptly acute, sessile, about 10–15 mm. long and 1 mm. wide in the dried specimen, commonly deciduous in the lower portions of the stem. Racemes axillary, few-flowered, shorter than the leaves or subequaling them, with triangular abbreviated bracts. Flowers minute. Dorsal sepal ovate, acute, cucullate, 1-nerved, about 2 mm. long. Lateral sepals very similar but slightly larger. Petals oblong-obovate (said to be ovate), slightly smaller than the sepals. Lip oblong, obtuse, about 2.2 mm. long and 0.8 mm. wide, often slightly constricted on each side above the middle, with a pair of approximate parallel keels through the lower portion. Column stout, dilated upward, trilobulate at the apex.

Amazonas: Prov. of Chachapoyas, middle eastern Calla Calla slopes, near Kms. 415–418 of Leimebamba-Balsas road, 2,900–

3,150 m., low epiphyte in moist ravine, sepals cream-color, petals white, *Wurdack 1745*; Same locality, 15 km. above Leimebamba, on road to Balsas, 2,950 m., *Hutchison & Bennett 4786*, *Hutchison & Wright 5557*. Also Ecuador (type).

***Pachyphyllum hispidulum*** (Reichb. f.) Garay & Dunsterv. *Venez. Orch. Illustr.* 3: 236, t., 1965. *Aeranthus hispidulus* Reichb. f., *Linnaea* 41: 31. 1876. *Orchidotypus muscoides* Kränzl., *Engler Bot. Jahrb.* 37: 383. 1906. *Pachyphyllum muscoides* (Kränzl.) Schltr., *Fedde Repert.* 15: 216. 1918. Also Costa Rica, Panama, Colombia (type of *Aeranthus hispidulus*), Venezuela, and Ecuador.

***Pterostemma calceolaris*** Garay, *Caldasia* 10, no. 47, 238. 1968.

Plant small, epiphytic, caespitose, up to 7 cm. tall. Stem strongly abbreviated. Leaves equitant, narrowly oblong-lanceolate, more or less falcate, acute or acuminate, articulated to imbricating sheaths at base, the blade up to 3 cm. long and 4 mm. wide below. Inflorescences arising from the upper axils of the leaves, filiform, up to 6 cm. long; peduncle 1- to 2-bracted; rachis of raceme 8-9 mm. long, with floral bracts densely congested. Flowers successive, glabrous, membranaceous, large for the plant. Dorsal sepal oblong-ovate, acute, 8 mm. long, 3 mm. wide. Lateral sepals narrowly oblong-falcate, acute, distinctly longer and narrower than the dorsal sepal. Petals linear, acute, lightly incurved, nearly as long as the dorsal sepal. Lip calceoliform-subglobose, subtrilobed in front, about 6 mm. long and broad; lateral lobules obtuse, incurved; midlobule triangular, reflexed; disc near the apex with an erect, complanate-digitiform callus. Column low, stout, 4 mm. high.

Loreto: Vicinity of Iquitos, 100 m., on dead tree, flowers light and dark violet, *Klug 10106*.

***Campylocentrum polystachyum*** (Lindl.) Rolfe, *Orch. Rev.* 11: 245. 1903. *Angraecum polystachyum* Lindl., *Bot. Reg.* 26: sub t. 68. 1840.

Plant caespitose. Stems branching with branches up to 7.6 cm. long, having long roots from the lower part. Leaves numerous, distichous, oval, obliquely bidentate above, coriaceous, about 2.4 cm. or less long. Spikes numerous, opposite the leaves, flexuous, many-flowered, slightly longer than the leaves. Flowers very minute. Bracts orbicular, ciliate. Sepals ciliate at base and apex. Lip sub-orbicular, cuspidate, with a very short, globular spur.

Peru: Habitat not cited, *Mathews 1905*. The description was compiled from the above cited diagnoses.